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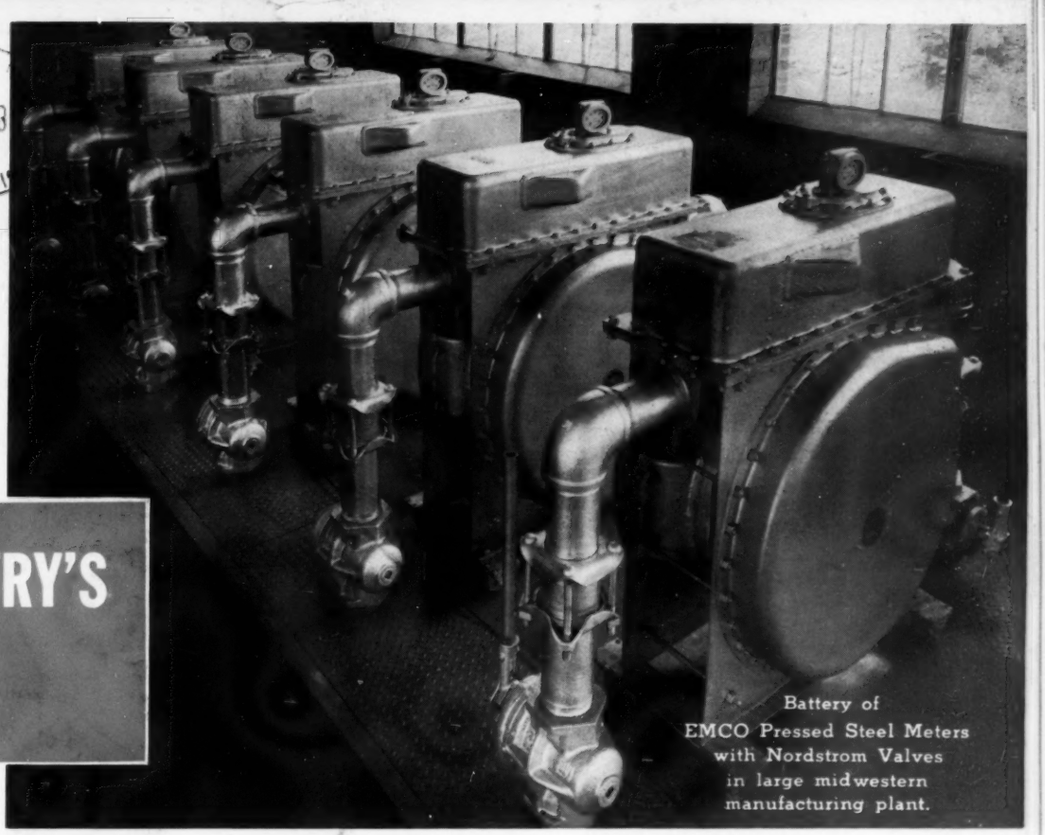

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Of industry's most widely used type of fuel, gas is the only one that is paid for *after* use at definite accounting periods.

From this point of view, EMCO Pressed Steel Meters have made a definite contribution to the increasing use of gas by providing a means for reliable, accurate measurement of large volumes. While they are giants in capacity, they require less floor space per cubic foot than any other meter. Their exclusive reinforced, pressed steel construction makes them extremely rugged and light in weight. Because EMCO Pressed Steel Meters fulfill every requirement for large volume industrial applications, they help sell gas to industry and build larger loads.

PITTSBURGH EQUITABLE METER COMPANY

MERCO NORDSTROM VALVE CO.

NEW YORK · BUFFALO · PHILADELPHIA · KANSAS CITY · TULSA · LOS ANGELES — *Main Offices* - PITTSBURGH, PA. — DES MOINES · CHICAGO · COLUMBIA · MEMPHIS · OAKLAND · HOUSTON

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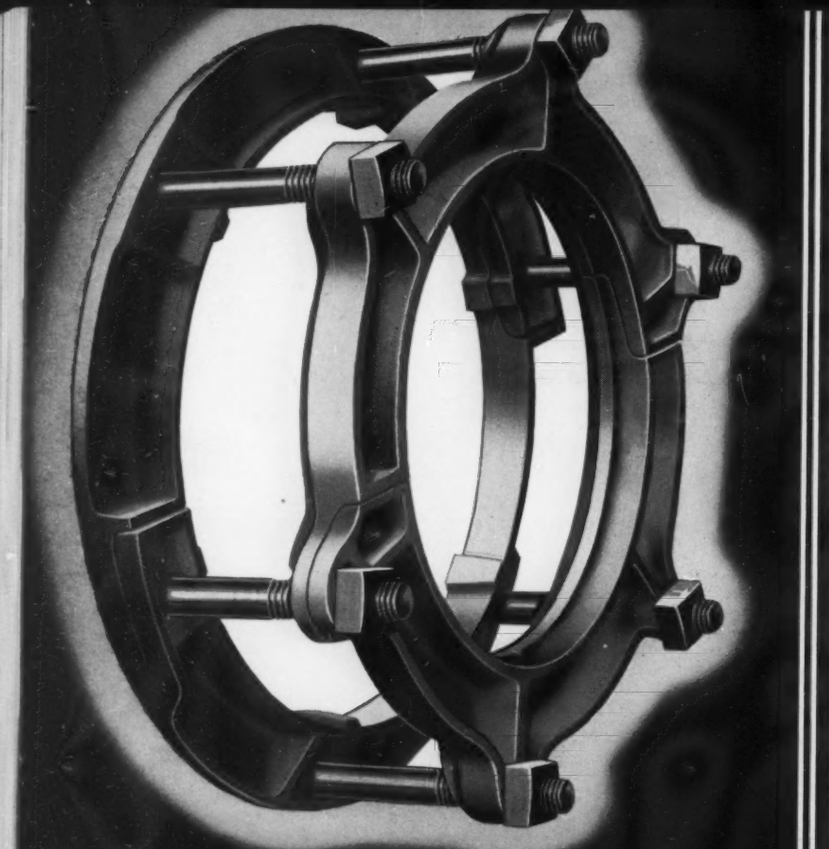

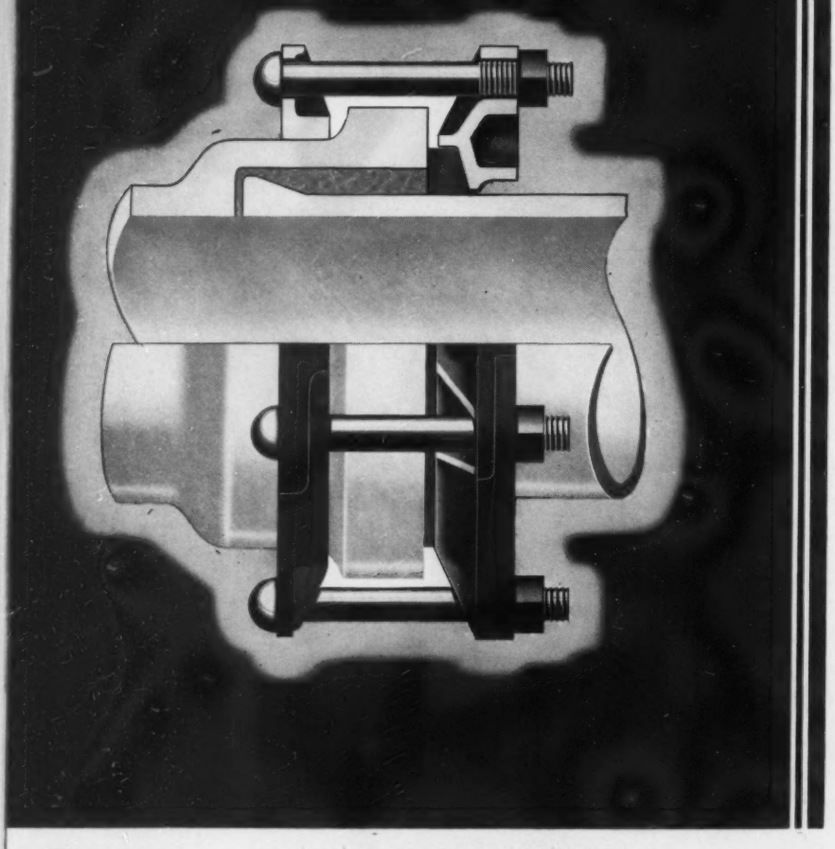

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- Extremely heavy construction of sections to prevent any possible distortion in drawing up.
- Hand sledged for even bearing completely surrounding spigot and as a test of perfect annealing.

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December, 1938. Volume XIV, Number 12. G A S is published monthly by Western Business Papers, Inc., at 810 South Spring Street, Los Angeles, California. Jay Jenkins, President; Craig Espy, Vice-president; George H. Finley, Vice-president; James E. Jenkins, Secretary-Treasurer. Subscription price (in advance) 25 cents the copy. $1.00 per year; other than U. S., $2.00 per year. Entered as second class matter August 20, 1936, at the post office at Los Angeles, Calif., under the Act of March 3, 1879. Copyright, 1938.

Official Publication: Pacific Coast Gas Association.

Member: Audit Bureau of Circulations; Associated Business Papers, Inc.

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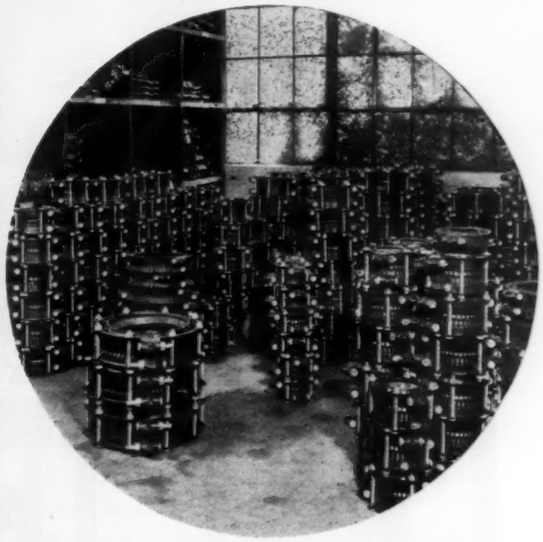

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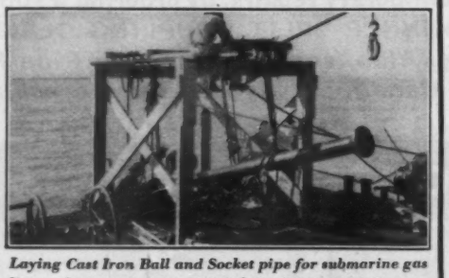

Laying Cast Iron Ball and Socket pipe for submarine gas line replacing substitute material which failed after 3 years.

IN the olden days, when the first cast iron underground main was installed, men read by the light from a candle or from oil burning in a shallow vessel. A century later came the lamp chimney, followed by other improvements in artificial lighting, most of which are now obsolete. Yet that first cast iron main is still in service and cast iron pipe, essentially the same material as in 1664, is today the recognized standard for underground mains. Nothing has taken its place. A pipe material must meet 10 requirements for long life and economical service. Some materials meet some of these requirements but only cast iron pipe meets them all.

CAST Q IRON

Look for the "Q-Check" registered trade mark. Cast iron pipe is made in diameters from 1¼ to 84 inches.

THE CAST IRON PIPE RESEARCH ASSOCIATION, THOMAS F. WOLFE, RESEARCH ENGINEER, 1013 PEOPLES GAS BUILDING, CHICAGO, ILLINOIS

....REVERSE FLOW *Results*

Installation No. One is a 10'-6" rebuilt set with backrun, located in New England, operating on gas oil, using 100 percent coke. We tabulate the average results from 15 consecutive days of gas making:
Days Operated 15
Average Daily Operating Time . 7 hrs. 38 min.
Average Total Make per Hour, M. cu. ft. 148.8
Fuel per MCF, Pounds 26.20
Oil, per MCF, Gallons 2.82
Average B. t. u. 553

FOUR SEMET-SOLVAY REVERSE FLOW WATER GAS MACHINES have gone into service. They are building up a record of results that more than justifies the enthusiasm of gas men for the process.

These machines are now making gas with both coal and coke as generator fuel—with bunker "C" oil or gas oil for enrichment at average city gas heating value—with coke and gas oil for high B.t.u. gas. They are meeting satisfactorily the requirements of calorific value, specific gravity and volume output.

The Semet-Solvay Reverse Flow Process is offered on its ability to deliver better yields from gas making materials and to lower the cost of gas in the holder. In substantiation of our claims, we shall let the machines built for Reverse Flow tell their own story in this series of advertisements. Figures presented offer a basis for comparison with individual plant records.

We believe it is possible to show that Reverse Flow can be installed in a majority of carbureted water gas plants, to yield economies and improvements that make it a most desirable investment. A preliminary calculation will be prepared without obligation for gas companies furnishing data on their present production.

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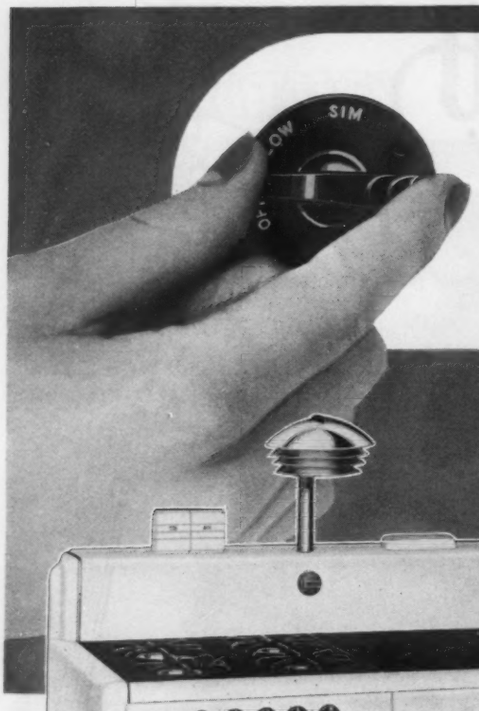
ENGINEERING *Engineers* **CORPORATION** *Contractors*

SEMET-SOLVAY ENGINEERING CORP. WE SELL SOLUTIONS TO HARD PROBLEMS NEW YORK

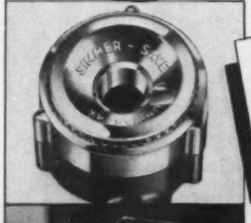
40 RECTOR ST. NEW YORK, N. Y.

THE TURN OF THE GAS VALVE



With a Universal Gas Range it Means a Truly Modern Gas Cooking Service

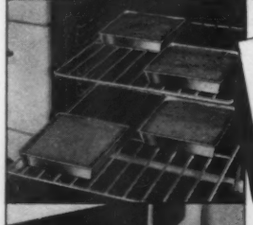
★ Gas cooking service starts and stops with the turn of a valve. What happens after the valve is turned is the basis on which the individual consumer judges the degree of modernity of the gas service. The Universal Gas Range, with its advanced devices brings to the consumer a new and higher standard of performance in all divisions of cooking. The Universal is a product of continual development. North, East, South and West, the Universal has been tested under the most severe operating conditions. It has been subjected to extensive engineering experiments and research to assure that it would render the utmost in efficient, economical operation under all variations of service conditions and regardless of the type of gas utilized. The gas utility company can be assured that when a Universal Range is installed in the home of a consumer, it is promoting the best interests of itself as well as the consumer.



Universal Simmer-Save Burner gives the plus value of a true warming heat, as well as an automatically controlled boiling heat.

CERTIFIED cp PERFORMANCE

Universal CP Ranges not only meet CP efficiency requirements, but are also nationally famous for the high standard of their cooking performance.



The Precision Oven gives even, balanced heat distribution, plus meeting CP speed requirements.

The In-A-Drawer Broiler with Savory Grid, represents the greatest broiling combination in the history of cooking appliances.

UNIVERSAL *Gas Ranges*

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GAS
December 1938

GUEST Editorial

WHAT ARE *You* DOING ABOUT IT?

By HERBERT A. EHRMANN

Chairman, Accounting Section
American Gas Association

AS we approach the close of the year, we find the accounting executive confronted with many complex problems which, from a management viewpoint, must be solved before the final balance sheet and income statement for the company is distributed to stockholders and others.

The lowering of utility service rates has in many instances caused a drop in revenue. This, plus the tremendous increase in taxation and operating expenses, has resulted generally in a decrease in net income, and in some cases an actual deficit.

A general analysis of the causes for these increased operating expenses shows that material costs have generally been increased, and sometimes a city sales tax has been added. Also, the preparation of the overwhelming number of reports to the many regulatory bodies, details of which in many instances are duplicated, and the installation and maintenance of the continuing property records and related problems have made necessary additional clerical effort and increased accounting and legal expenses.

An analysis of the accounting costs on a per customer basis will show, in nearly all companies, that costs have in the last 10 years risen by almost unbelievable percentages.

Of course, in citing these few instances I am only mentioning some of the high spots. But "What are you doing about it"? Have you gone the full distance to get your costs as low as possible? Have you exhausted all means in your accounting functions to bring about economy for such items which are controllable?

As one accounting executive put it—the accountants, in general, have been concerned primarily with the best way in which their operations could be conducted. Have they been sufficiently concerned with the most economical way to do a good job with the same operations?

Economy, then, is the keynote in their approach to their problems.

What are you doing about the establishment of better control of expenses through a flexible budget and the allocation of responsibilities? What are you doing about the reduction of the number of statements circulated, the simplification of procedures and design of office forms, the introduction of wage incentive plans? What are you doing about the stabilization of employment and the possibility of merit rating under unemployment insurance laws, the evaluation of the various positions in your company, giving consideration to salary and wage standardization, the establishment of actuarially sound pension, disability and insurance plans?

This brief editorial refers to only a part of the problems, but there is ample evidence of the increasing importance of the studies undertaken by the Accounting Section of the American Gas Association. And the value of the association work is enhanced by greater participation by the companies. Membership on the various committees of the Accounting Section offers an invaluable medium for the discussion and exchange of ideas and an opportunity to meet others in the industry who are confronted with like problems.

As Chairman of the Accounting Section, I make this frank plea for support, for the good of the industry as well as the individual company.

SAFEGUARDED

. . . every Step!

● **RIGHT-SERVICE DIAPHRAGMS** . . . for new or repaired meters . . . are insured only by the perfection of every single detail. Considering the important function of the diaphragm, small initial "savings" may be decidedly "penny wise, pound foolish." Savings which fail to insure experienced manufacture . . . or uniformity . . . or flaw-free quality . . . can bring no real economy. Emphatically true of diaphragms! Every quality—every desirable characteristic determined by laboratory research, by field test and by wide diversity of installation—is found **UNSKIMPED** in the American Meter Company product. What better assurance of quality than a source of supply which today—because of adequate purchasing power—has access to prime leather selection, scientifically prepared impregnating formulas and exclusive methods of fabrication and seasoning? Like other **AMERICAN** gas meter refinements, diaphragm quality is being confirmed . . . by the actual performance records of meters in service.

● Our **DIAPHRAGM RESEARCH BULLETIN** shows the painstaking background implicit in quality merchandise. May we send you a copy—or consult with you on your diaphragm problems?

PROPER PACKING AND SHIPPING

This perfected method, developed over a period of years, has won the enthusiastic approval of our gas company customers. Note the carton built to carry fifty diaphragms. It contains four hollow square tubes. Over each tube the diaphragms are placed—four to a layer. On top and underneath each layer a piece of paraffin chip board is inserted. Thus, the diaphragm never comes in contact with the side of the case—but only with the paraffin chip board. *Safeguarded in transit . . . safeguarded in handling!*

872

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AMERICAN METER COMPANY

INCORPORATED

PACIFIC METER WORKS • LOS ANGELES • SAN FRANCISCO

GAS

FOURTEENTH YEAR OF PUBLICATION

THERMALLY *Thinking*

By STANLEY JENKS

Editor

Seasonal Greetings

It has been a hectic year for the gas industry, but thanks to the inherent stability of the industry itself and a new born spirit of constructive aggression in the hearts and minds of gas men, the industry has ridden the storm far better than most. In the bread-and-butter domestic field, we have seen our position even improved, and as a vast fuel service industry, susceptible to the whims and vagaries of fortune of our industrial and commercial customers, we have slipped some, of course, but remarkably little compared with industry generally. In fact, the fading year has been one of definite accomplishment, especially in justifying the viewpoint of those ardent advocates of selling our way out of the hole that political attack and economic depression had driven us in. An aggressive selling plan was the only available weapon we had to combat the destructive forces abroad. Accordingly, we have gained more cooking, water heating, refrigeration and central heating load, mostly through existing facilities.

Manufacturers of gas appliances and equipment have rendered splendid support, and never before in its history, has the American gas industry had such a complete and effective national sales promotional program as that embodied in the C.P. range campaign launched last August.

Our national advertising reached a new high level, and its double-barrelled effect, as pointed out by Colonel Chevalier, in awakening public consciousness and building a better morale within the industry, has undoubtedly contributed much toward the further gasification of these United States.

Nobody attending section meetings this year, could fail to observe that behind the scenes in prosaic accounting, engineering, production and distribution departments, the gas industry is really marching on to a future destined, I sincerely feel, to dim the past in both utility and accomplishment.

And today no brief review, such as this, of the gas industry is complete without a reference to the remarkable progress made in the "gas beyond the mains" field. If ever there was a lusty infant in industry, this is it, and the significance of its growth should certainly not be lost or ignored by either manufacturer or "city" gas man.

It is the fashion . . . and a good one too . . . at this time of the year to wish one's friends the peace on earth and good will to all men that signifies the Christmas season. We of GAS magazine, proud to be of the gas industry, and lending our every effort to its further success, are grateful to our many friends and readers for their active co-operation and support, and take this opportunity to wish one and all a very merry Christmas, and a new year, in which, we hope, many dreams will come true.

Long-winded Convention Speakers

If there is one unenviable job in planning a convention, conference or group meeting, it is that of preparing the program, and because it will soon be our open season for regional conventions and conferences, I bring up the subject.

It can be taken as fundamental that no program can cover all that should be covered to please everybody. That's a hazard in the first place confronting the program committee. The time element restricts the bedevilled program committee to choose the major topics first, and to fill in the rest with items of lesser importance according to their judgment. Back of their minds, they feel the need to make their program as up-to-date, attractive and interesting to as many people as possible. They invite speakers "who know whereof they speak." And after many headaches, heartaches, and bellyaches —let's be frank—the program is arranged to the last detail and timed to the last minute. Are their troubles over? They are not. It is my experience that they have generally just begun, mostly due to the over-enthusiasm, shall we say of some of the invited speakers.

Many, who appear on our convention programs have apparently never heard the story of the old-time preacher, famed for his brevity, in an era when long-windedness was the order of the day. Asked the reason, he replied, "It has been my experience that no souls can be saved after the first 20 minutes." But few of our programs seem to escape the speaker, duly assigned let us say 20 minutes, who rambles on and on to the complete boredom of his audience, the anguish of the presiding chairman, and at the expense of the speakers to follow.

The program is the core of all conferences, and participating speakers owe some consideration to the program committee that invited them, and while appreciating their effort, I suggest that they better serve their own purpose, and enhance the value of their contribution, when they stay within the time limits assigned them.

T.V.A. Costs

Since it started, I have pulled no punches on the subject of T.V.A. for two very good reasons. First, I have no confidence in the ability of any political ownership and management in the realms of private enterprise. Second, I don't like hokum, and the sheer hocus-pocus of the "yardstick," in the light of what has transpired, is apparent to all who want more than airy phrases for the appeasement of their political misgivings.

But no matter whether you are for or against the private ownership of utilities, it would be impossible for you to disagree with the ousted Dr. Arthur E. Morgan's insistence that the real costs of T.V.A. electrical operation be determined.

> In the development of hydro-electric power, where capital investment is by far the largest part of the total cost, the elimination of every part of the cost of the dam or reservoir from the recorded cost of hydro-electric power often would constitute so great a subsidy to public power as to destroy any real comparison with the cost of private power. It would go far to destroy any possibility of private competition, no matter how efficient and economical the private administration might be, and at the same time would leave a margin of apparently low costs which would encourage lax and wasteful operation.

As the **New York Times** has said, "Everyone who believes in the technical superiority of private enterprise will naturally support this position. It should be no less clear that every one who sincerely believes in the technical superiority of public operation will also support it, for he will be convinced that public operation can stand and would profit by an honest comparison of costs. Any advocate of public ownership and operation who opposes the fullest and most rigidly accurate and honest cost accounting on a public project, who opposes taking into account the same real costs that private enterprise must take into account, is in effect taking the position that the public should be kept in ignorance, or actually hoodwinked, concerning the real costs of government operation."

Our Manufacturers' Position

Among the conscientious readers of this column, so he writes, is a manufacturer of gas appliances, who at times, self-admittedly gets very discouraged with things as he finds them in the field. The gas industry, he claims, cannot see wood for trees, as it blindly hangs on to sales methods of the gaslight era, in a day when there is nothing constant but change.

He begs me, as though I could even if I would, to set off not a mere firecracker, but a stick of dynamite under the "well-worn" chairs of . . . wrong! Not utility sales managers but the front office executives, whose lack of perception of modern selling conditions, he feels, is unwittingly retarding progress on the firing line.

I asked him to list his specific charges, for I know him to be alert, well-informed and certainly not malicious in intent. Nor is he an habitual sourpuss. Dewey here in New York has broken up plenty of well-entrenched rackets with fewer indictments. I couldn't begin to list them all here, but I will, if you think it will serve a useful purpose and benefit the industry. Boiled down, gas utility managements in general are accused of being too restrictive in their sales policies when they build fences around their territories, making it damned tough if not impossible for manufacturers not on their "approved" lists to do a sales job in the face of the utility's retail and wholesale competition. He talks of "front office" pronouncements on dealer cooperation, which in practice downstairs don't mean a thing. He blames the system of paying men to compete with the very people with whom they are expected to cooperate as prima facie evidence of the insincerity of these "front office" bromides. He cites one area of nearly a million domestic meters, where all but three manufacturers of a certain popular appliance, manufactured by over 40 companies, would starve to death trying to buck utility competition. And there is an alleged "dealer cooperative" plan in effect too.

Trade relations is a highly controversial subject. For years, the best minds in the industry have been probing incessantly for a solution. In my manufacturing days, and after a long apprenticeship in the gas business on the utility side of the desk, I must confess that my eyes were often opened by some otherwise unbelievable conditions I met.

Perhaps the day is here when the gas utilities must more adequately recognize their obligation to all gas appliance manufacturers of good quality dependable merchandise, and broaden their trade relations policies to allow an equal opportunity to all such manufacturers, the results to be measured solely by the manufacturer's ability to "deliver the goods," thereby building load and making a profit for himself, without the handicap of meeting competition from the very people, who, in the last analysis, stand to benefit most from his efforts.

Denver's Claim

Is Denver justified in claiming that in communities of 50,000 and over, it has the highest saturation in the world of domestic automatic gas water heaters and of combined automatic water and home heating usage?

Roy G. Munroe, who is in charge of miscellaneous new business activities of the Public Service Co. of Colorado at Denver, after a conversation we had at Atlantic City, has supplied the following figures:

"As near as we can estimate," says Mr. Munroe, "and judging from the reports of the Denver Real Estate Exchange, Denver has about 60,500 private dwellings and individual houses. Our sales records indicate that there are burning on our gas mains about 26,851 automatic gas storage water heaters, which would mean a saturation of 44.5 per cent. At the same time, we have almost exactly 12,000 homes being heated with gas or about 20.0 per cent. It is our belief that this saturation is more than twice that of any community of like size (over 50,000 population) in the world."

Frankly, I don't know whether this world's championship pennant really belongs to Denver or not. I never heard of a better job nor even one as good. And this, mind you, despite the fact that excellent coal, retailing at $4.50 a ton delivered, is mined in the suburbs of Denver and is therefore readily available.

Until contrary proof is received, GAS accepts Denver as the large community world's champion of domestic gas load builders. And while we are on the subject, who are the pennant holders in the smaller communities?

Through the snow covered terrains of Utah runs the Mountain Fuel Supply Company's newly constructed 18-inch natural gas transmission line. Despite the problems offered by sub-zero temperatures, the line was scheduled to be completed this month.

Looping a 53-mile Gas Line

Mountain Fuel Supply Company Conquers Rough Country, High Altitudes, and Zero Weather to Complete Project

MORE than usual interest attaches to the construction of Mountain Fuel Supply Co.'s 53-mile, 18-in. loop line in Wyoming and Utah scheduled for completion this month. The project involved laying pipe from Bigelow Hill, Wyoming, to Coalville, Utah, through rough country at high altitudes under severe conditions with temperatures reaching 16 degrees below zero. Work commenced on September 25, 1938. With the very early advent of winter this year in the Rocky Mountain region, snowfall at many points on the right-of-way reached 10 in. by mid-November. Frozen ground has interfered with trenching and backfilling; constant maintenance of roads has been necessary in order to keep them open for hauling; during extreme low temperatures idle equipment frequently froze fast to the ground. Although recent progress has been less rapid due to these conditions, the general contractor, S. D. Bechtel Co., of San Francisco has maintained a steady rate of activity considered unusually good in the face of the problems encountered.

The line parallels the Mountain Fuel Supply Co.'s present 18-in. line, and is being constructed as a supplemental line to carry additional gas during winter peak loads.

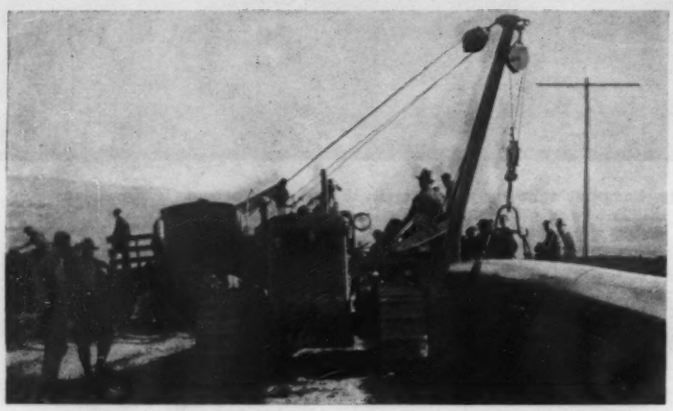
The entire line is being laid with National Tube Co. 18-in. O.D. seamless pipe, quarter inch wall thickness, weighing 47.39 lbs. per foot, in 42 ft. six in. lengths with plain end beveled to 30 degrees for welding. Pipe has been shipped to Leroy and Millis, Wyo.; and to Coalville and Wasatch, Utah; from which points it has been hauled to the line and strung by C. Hobson Dunn of Dallas, Texas, trucking subcontractor. Average haul approximates 15 miles from railhead. Shipments were started on September 14 and completed on October 4.

Peculiar to this job was the necessity of constructing roads for access to the line and distribution of materials, as well as for transporting men to all parts of the line. Due to the extreme conditions of cold and to storms which had not been anticipated so early in the year, tractors with angledozers were required to keep roads open. In at least two instances it was impossible for the trucks to return to town under their own power until angledozers had cleared the road, and on another occasion it was necessary to use teams to drag the trucks through heavy snow.

This part of the country has long been recognized as a difficult area for construction projects. It presented a great deal of trouble to railroad builders, and airlines find it the most difficult to maintain. The line traverses altitudes varying from a low of 5800 ft. near the Coalville terminus to a high of approximately 7700 ft., at the Bear River divide, 29 miles from Coalville. Approximately three miles from the eastern terminus the line again drops, at this point to 6950 ft., then rises sharply to 7160 ft. at Bigelow Hill Gate.

One of the most interesting phases of the job was the installation of the

AT LEFT: With snow covered equipment, this crew, working in sub-zero weather, makes a wrinkle bend on the Mountain Fuel Supply Co.'s new 18-inch gas line. BELOW: Unloading 40-foot sections of pipe at Coalville, Utah.



AT LEFT

Crew and crane at work raising the pipe off the skids for the coating operation.

Bear River crossing, one of several river crossings made under rigorous conditions. At Bear River the temperature reached 21 degrees below zero during the installation period, and the day pipe was laid the river was frozen to a depth of six in. The crossing consisted of a single 18-in. line buried below the river bottom. Although frozen, the river was not deep and ditching was accomplished by the use of a ditcher, supplemented by hand crews. Pipe was placed by a special gang working with tractors equipped with Cardwell sidebooms.

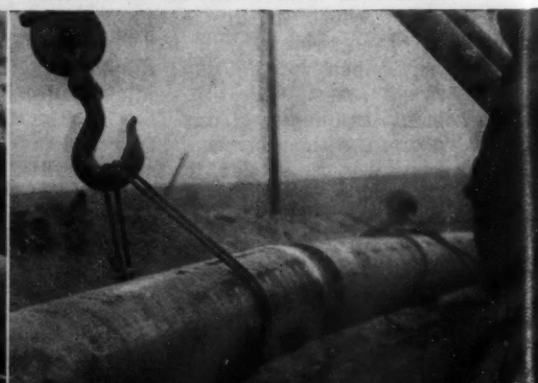
One of the principal factors contributing to maintenance of steady construction progress on the line under the severe weather conditions encountered was the contractor's ability to call upon a large and seasoned organization of trained men, brought to the job from various other territories. The personnel of the S. D. Bechtel Co. organization which had just completed construction of the 136-mile oil line for the Rocky Mountain Pipe Line Co. was moved to the Mountain Fuel Supply job, together with equipment.

Right-of-way was cleared with a tractor equipped with Le Tourneau angledozer. Trenching was accomplished with one Model 48, two Model 36, and one Model 12 Buckeye Wheel Type Ditchers. In areas where trench was cut from rock, one 220 cu. ft. Ingersoll Rand air compressor and one 360 cu. ft. air compressor were used with six jackhammers. Rock trench dug to an average depth of 44 in. was filled at the bottom with earth four in. deep to protect coated pipe from the rock bottom of the trench.

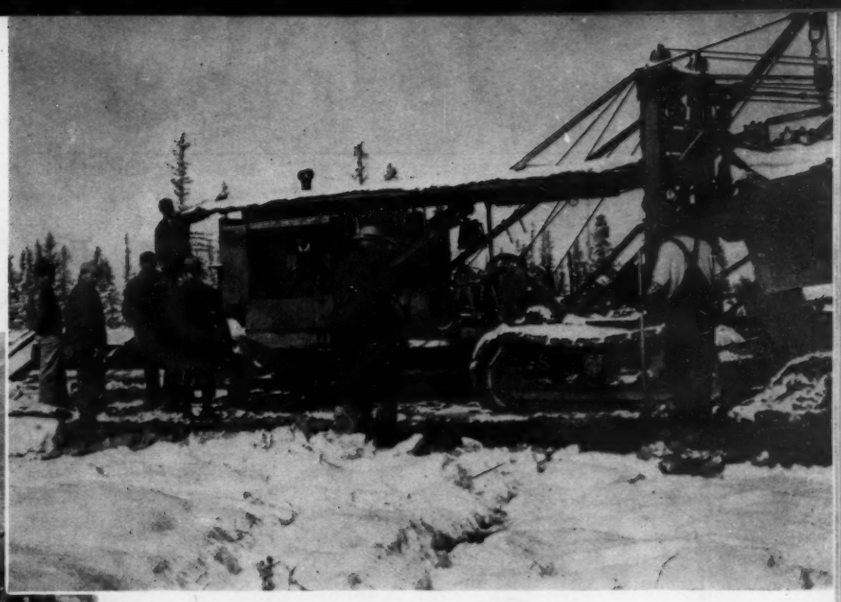
H. C. Price Co. of Bartlesville, Okla., welding subcontractors, did the complete welding including line up. The entire line was "firing line" welded into strings varying in length from 80 to 240 feet. Split chill rings were used. Tacking and tie-in welds were made on hardwood skids over the finished ditch. Slack in the line was obtained by laying the line alternately over and off the ditch at necessary intervals. Open ends of the line were closed at the end of each day's work with steel discs tack-welded into the opening, to prevent the entrance of small animals into the line.

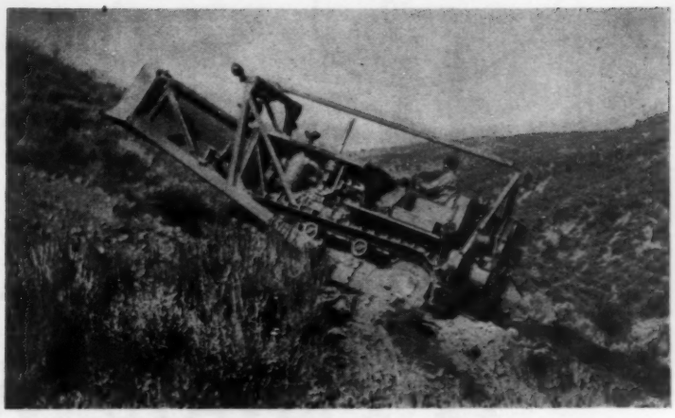
The tie-in was done by two swing gangs consisting of units with two

AT LEFT: Charles R. Hetzler, Mountain Fuel Supply Co., inspects a sag bend. CENTER: Down on his back, a tie-in welder at work. RIGHT: Making an overbend and a slight side bend in one operation. The pipe was previously heated part way around the circumference at two points with the torch. This represents a departure in the field bending of large diameter pipe.



AT RIGHT: Frozen ground proves a hindrance in the trenching operations on the pipe line construction project. BELOW: Lining up—this operation was usually done with five lengths of pipe to form a section of 200 feet in length.





AT RIGHT

A tractor makes its way over hilly terrain, a typical section of the right-of-way.

RD6 sideboom-equipped tractors each and the necessary service trucks and incidental equipment.

An interesting feature of the job is the use of "field wrinkle bending" on large diameter pipe. All vertical and horizontal bends in the line were made by this process, the required amount of total bend at any one place being achieved by making the necessary number of individual wrinkle bends. Maximum bend for each wrinkle was five degrees, and minimum distance between wrinkles was 18 in. An area two to three in. in width extending from ½ to ⅔ the circumference of the pipe was heated with welding torches. All wrinkle bends were made over the trench.

The entire line was treated with a protective coating, following pipe cleaning and priming. This treatment consisted of three hot coats and two spiral wraps of Johns-Manville Asphalt Saturated Asbestos Paper which was applied over the trench while pipe was cradled by two heavy Diesel tractors with Cardwell sidebooms. Wrapping was applied by six wrapping machines. Ten asphalt melting kettles were used to heat treatment materials. Due to the mountainous nature of the country two tractors were required to draw kettles and wrapping equipment.

After application of the protective coating and before lowering pipe into the ditch, the coating was tested with a Holiday Detector, moved slowly along the pipe. By this method pin holes or other points of low resistance may be located by sparks jumping from the instrument's wire brushes to the pipe. Automobile globes placed in series with the lead wires glow with a faint blue light when the current breaks through the coating.

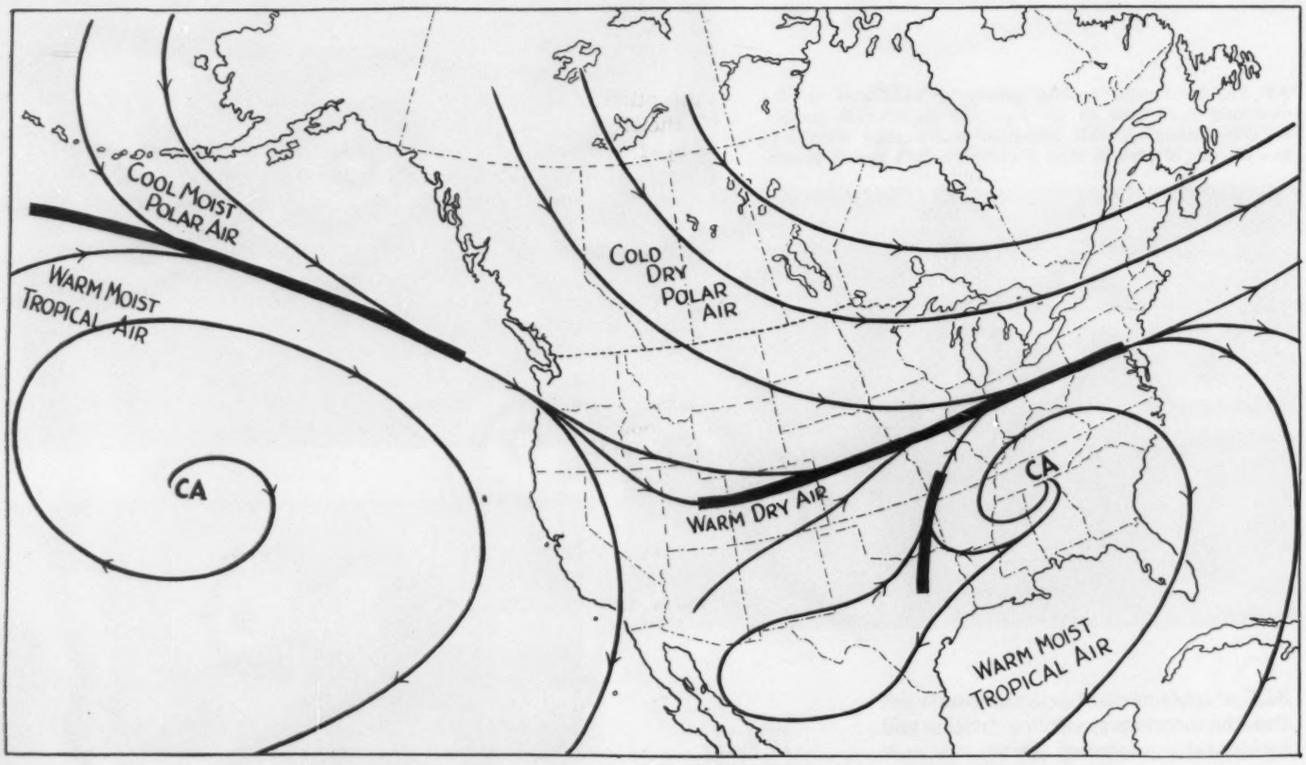
Backfill was accomplished in the usual manner, using two RD7 tractors with angledozers.

Gas tests were made upon completion of each section of pipe line, using a gas pressure of 300 lbs. built up in the line and held for 72 hours.

On the project 200 men were employed by S. D. Bechtel Co., and an additional 55 men by the subcontractors. In addition to the equipment previously listed, H. C. Price Co. used 16 welding machines, two 30-

(Continued on Page 24)

AT LEFT: Tieing-in a long section. CENTER: In action on the job (left to right) J. E. Lyons, Mountain Fuel Supply Co.; Russell Quick and George S. Colley, S. D. Bechtel Co.; Wayne Packer, National Tube Co.; C. R. Hetzler, Mountain Fuel Supply Co.; Walter Simms, H. C. Price Co. AT RIGHT: Looking west along the newly constructed line.



A map showing the normal position of Center of Action and principal air currents during November.

A Private Weather Bureau Guides Natural Gas Service

MARK TWAIN'S famous wise crack is the thing that pops into everyone's mind the first time he hears about the Krick Weather Service, a unique private weather bureau now employed by southern California gas companies, among other industries in Los Angeles and elsewhere. Twain, you will remember, said: "Everybody talks about the weather, but nobody does anything about it."

DR. IRVING KRICK

The Krick Weather Service is making that remark look rather silly now. Dr. Irving Krick, founder and director of the bureau, undertakes to foretell in precise detail, and with an accuracy that has proved truly amazing, exactly what sort of weather is in the offing for days in advance. Wind conditions, the presence or absence of clouds, temperature, the likelihood of rain or snow are all forecast by him for three, four or more days in the future; and this year, he has gone a step further—boldly offering a general forecast of weather conditions for the entire winter season. Forewarned with such information, people, particularly commercial people, can do a great deal about the weather!

Dr. Krick, who heads the department of meteorology at the California Institute of Technology in Pasadena, established his service originally for the benefit of airlines. His success in forecasting weather conditions was so marked that he was soon prevailed upon to extend the service to other industries, notably the motion picture studios in Hollywood. The motion picture studios learned that they could save very large sums by regulating their outdoor "shooting" on the basis of Krick's predictions.

During the winter of 1936-37 southern California experienced one of the most severe and prolonged cold spells in the history of the region. Gas facilities were taxed to the limit to supply the demand for fuel, and the necessity for more exact weather forecasting was seen. Consequently, the services of the Krick weather bureau were secured in the fall of 1937. Results obtained during the winter of '37-38 were so successful that the local gas companies signed a year's contract, starting May 1, 1938.

The necessity for accurate weather service can be seen from the load conditions which exist in southern California. On a typical summer day in the Los Angeles area the domestic load will be approximately 90 million cu. ft., in contrast with a winter peak demand of 300 million cu. ft. During the winter time the presence of clouds, rain, fog, wind, or snow on mountains affects the gas business, and in a climate such as that of southern California, any one of these conditions changes rapidly. Consequently it is

desirable to have accurate and continuous information on weather conditions throughout the winter months, and also to have accurate data on the progress of storms approaching the southern California coast from the west and northwest, from which directions the heaviest winter storms generally come.

Such detailed weather information is needed to assist gas company dispatchers in forecasting probable demands and making necessary preparations. By experience, dispatchers have found it takes from six to 10 hours to get gas from the major San Joaquin fields to Los Angeles and from two to four hours from the coastal fields. Thus it is necessary to have accurate, reliable information coming to dispatch headquarters.

Typical Day's Requirement

A typical winter day's requirements from the general forecasting standpoint are: At 3:30 p.m. a general 24-hour forecast is requested, giving specific information on minimum temperature at 6 p.m. along the coast, at Los Angeles and in interior locations such as Pomona and Colton. If a storm is approaching the coast, a preliminary forecast two or three days in advance is helpful. At 8:30 a.m. the previous afternoon's forecast is reviewed and any additional information for the next 12 hours is given. Maximum temperatures during the day at several points are given, and also between 10 a.m. and 4 p.m., if specific information is wanted on certain districts, or if very changeable weather conditions are in progress.

The information available in the afternoon is used to plan operations for the evening and to see that holders and pipelines are operating at the capacity desired by 6 a.m. to take care of the morning loads. The domestic and commercial peak send-outs occur largely between 6 a.m. and 9 p.m., and the morning forecast gives a check on the previous afternoon's information, and allows any necessary change to be made, so that there will be no diminution of gas over the afternoon and evening peaks.

The advantage of a private weather service is that, since the gas industry operates seven days a week, so the weather information must be secured seven days a week.

The basis of Dr. Krick's method is a so-called "air mass analysis" technique developed at the Geophysical Institute at Bergen, Norway, and brought to this country by him in 1932. The "air mass" theory holds that there are two opposed masses of air in continual conflict. One of these, a cold mass, originates in the Polar regions, and the other, a warm mass, originates in the tropical latitudes. The interaction of the masses along their zone of separation, called "cold fronts" and "warm fronts," cause weather disturbances, it is believed.

"Since warm air currents," Dr. Krick explains, "are lighter than cold ones, they are always forced to ascend the forward edge of the cold mass whenever the two currents meet. It is on these occasions that widespread precipitation occurs, for as the warm current rises it cools by expansion at the reduced atmospheric pressures aloft and its moisture condenses to form clouds and precipitation."

Storms, set up by the conflict of the air masses, cause their boundaries to oscillate north and south while the wave-like ripples they set up move eastward. Sometimes these boundaries swing far southward, propelled by an outflow of polar air, and again they may be forced far to the north by a tropical current. By means of observational data gathered from 300 or more stations in the United States, Canada and Alaska and from ships at sea, it is possible to locate the "fronts" and determine the speed at which they are traveling.

This information is supplemented by data as to temperatures and humidities at various elevations obtained by a radio-meteorgraph, an uncanny little instrument which, attached to a hydrogen inflated balloon and ascending to heights of 10 and 15 miles, automatically radios back temperatures, humidities and air pressures at various levels. Six of these instruments are sent up at strategic points over the United States and Alaska every day.

Foretelling the Future

"These data," Dr. Krick states, "enable the forecaster to form a fairly complete map of weather conditions as they exist, and to estimate accurately their future developments."

The boundaries between the cold and warm air masses shift constantly. However, they tend to keep average positions on the map. Any marked shift, according to Dr. Krick, would mean a significant departure from normal weather, and it is by observing the position of what he calls the "semi-permanent boundaries" of the cold and warm fronts that he is able to foretell the probable type of weather over a period of months.

"Determination of seasonal temperature and precipitation trends depends primarily upon the correct anticipation of the average positions of the zones of interaction between air currents," he says. "These are the regions where storms develop. Their position appears to be a function of the location and intensity of great areas of relatively high atmospheric pressure centered in sub-tropical latitudes. Owing to their importance in the control of weather these high pressure systems are called the "centers of action" of the atmospheric circulation. They persist for long periods in approximately the same average position, and therefore materially influence not only the location of the zones of interaction between air currents of the atmosphere but also the paths followed by the principal rain-bearing air streams which have their origin within these high pressure systems."

Use of the Chart

The chart illustrates the position of air masses during the month of November. Analyzing the weather indications for this month, Dr. Krick made the following prediction, which has so far proved quite accurate:

"Developments this year indicate that the centers of action, and therefore the regions they control, have undergone quite a displacement from the positions indicated for a normal year. This means that the resulting weather throughout most of the country will also show deviations from the averages. Provided the observed shift of these controlling features of the atmospheric circulation persists, we may estimate its influence upon weather conditions throughout the country with a fair degree of accuracy. Centers of action are displaced this year about 500 miles northward and slightly west of the normal positions. The zones of interaction between the principal air currents have also suffered about the same displacement. Furthermore, the sporadic outbreaks of cold air from Canada which invade the Middle West during this season of the year are developing less frequently than in a normal year and are moving southward into the United States about 500 miles west of their usual course.

"The principal rains in the Mississippi and Ohio Valleys occur when the center of action normally located in eastern Tennessee shifts a few hundred miles to the southeast for several days, sending a current of warm, moist air from the Gulf of Mexico into these areas. This year the average position of this system is so far

(Continued on Page 49)

Conveyor belt in meter shop scene of "Dramatic School," a motion picture starring Luise Rainer and Paulette Goddard, showing factory girls assembling meters. Frank D. Honberger, meter shop superintendent, Southern California Gas Co., who acted as technical adviser on the picture, is seen giving one of the girls instructions.

A Meter Shop Plays a Movie Role

By DEKE HOULGATE

American Gas Association Representative

BEFORE the last foot of motion picture film has been run through the last camera, it is more than probable there will be nothing on this good earth, or beneath it, or in the heavens above that will not have served as a peg on which to hang a motion picture story. Long since have the producers exhausted all the ordinary scenes and events of daily life; yearly, in their search for something new to whip up the interest of the jaded and blase movie going public, they stray farther afield, making all sorts of bizarre excursions into the odd and interesting and out-of-the-way. The veteran flicker fan has learned not to be surprised to find his favorite star in any sort of situation: climbing the Alps; driving a milk truck in San Francisco; selling lingerie in Budapest; pearl diving in Tahiti; riding a rocket to the moon. The handsome hero who has dashed through this picture as a prince, will be equally dashing as a plumber in the next; and the lovely heroine who lures him, does so equally effectively as Cleopatra or Cinderella.

DEKE HOULGATE

Consequently, the fact that Luise Rainer is discovered working in a gas meter shop, of all places, at the opening of her forthcoming starring vehicle, "Dramatic School," soon to be released by Metro-Goldwyn-Mayer, is not likely to make much of a stir among her fans generally. The gas meter shop, as a matter of fact, is incidental. Nevertheless, gas people over the country should be interested, for it is an authentic meter shop constructed under the supervision of Frank S. Honberger, meter shop superintendent of the Southern California Gas Co. in Los Angeles.

The story, taken from a European play which was never produced, is that of a young Parisian girl (Luise Rainer) who dreams of becoming a great actress. Poverty stricken, she works in a factory where gas meters are manufactured and attends a dramatic school in her spare time. She is blessed with a vivid imagination, and she gets herself into difficulties telling fanciful stories about herself to fellow students at the dramatic school. She is supported in the role by Paulette Goddard, who is billed as "the most publicized star of 1938." Other members of the cast include Alan Marshall, Genevieve Tobin, Henry Stephenson, Lana Turner, Anthony Allan, and Gale Sondergaard.

In preparing to film the story, M-G-M scene designers visited Southern California Gas Co.'s meter shop on Santa Fe street in Los Angeles. Lighting difficulties stood in the way of using it as a scene for the action; so they designed a complete meter factory, and built it on one of the big sound stages at the studio in Culver City. Frank S. Honberger was called in to give technical advice.

Designed primarily as a stage set, the lay-out neverthleess was workable. Most of the action takes place around one of the two conveyor belts which were installed down the center. Luise Rainer, in the story, is one of the 40 girls who assemble the meters as they pass along the conveyors. Although it is probable that conveyors of this sort are used only to a limited extent in any of the meter factories or shops over the country, it was a necessary piece of business

(Continued on Page 29)

DANGERS of OVER-REGULATION

By GEORGE S. CREMER

Certified Public Accountant

ACCOUNTING* has always been, very properly, the most effective tool used by the regulatory commissions. In the beginning it was the only tool which they had. The earlier railroad commissions, which were the ancestors of the present public utility commissions, were entirely without powers or duties respecting rates, serving only as gatherers of railroad statistics to be submitted to the state legislatures as indicative of the need for direct regulatory enactment.

Statistical information was gathered and published not as a report on the results of regulation, but only because it was recognized then, as now, that one very effective way to stop unfair practices is merely to let their existence become generally known. Naturally there was at times a tendency to make the published statistics propagandistic rather than informative.

The possibility that the uniform classification of accounts might be so arranged that the financial statements of the companies themselves, without any alteration whatever, would serve propagandistic purposes has always been present, and the infrequency of the instances in which such a thing has been attempted (prior to the "New Deal") is a tribute to what has been the basic integrity of the regulatory commissions. But there is always a danger in the popular overestimate of the value of minute rules and regulations governing accounting classifications and procedures, and the natural tendency of outsiders to think that the financial reports made under such rules are in truth the statements of the companies' officers, instead of only their best effort to follow the forms.

Benefits of Wise Regulation

The present greatness of the utility industry must be attributed in a large measure to the benefits of wise regulation, which has allowed the utilities to grow up and give better service than would have been possible under a competitive system.

On the other hand, it seems as though unwise regulation or too much regulation sometimes threatens to destroy the industry which wise regulation has done so much to build up, and such a situation some of us think is confronting us at the present time.

It should not be necessary to point out that there is a difference between regulation and administration, and that the administration of any business enterprise, even though it is tinged with a public interest, must remain in the hands of its owners.

Uniform Accounting Systems

The uniform accounting systems which have recently been put into effect seem to be based upon the idea of dealing with a utility company as a public institution instead of as a business enterprise. This is the explanation of the requirement that the books must show the "aboriginal" cost of the properties instead of their cost to the present owners; a requirement which has caused almost as much controversy as the question of straight line depreciation, and which when it has been accomplished must cause obnubilation and loss of probative value in the property accounts.

The "public interest" with which a utility enterprise is said to be affected is not a proprietary interest, as the makers of these new accounting systems seem to have assumed; it is merely a concern in the quality and availability of the service and the fairness of the rates. There is in it nothing which justifies governmental interference with the right of the enterprise to exercise its own best judgment in the management of its own affairs.

There is in recent requirements with reference to adoption of straight line depreciation a danger to management which is greater than would appear on the surface. It affects the life of the properties themselves, by making mere bookkeeping entries determine maintenance policies.

Under this depreciation method, property is assumed to have deteriorated whether it has in fact done so or not; there is no incentive to prolong the life of the property through careful maintenance. Actually, the ability to maintain the property is curtailed because of the enforcement of a charge to operating expenses for theoretical depreciation which assumes that repairs could not increase the service life.

Either dividends must be stopped, and bond interest represented as being not earned (although it might still be paid) or maintenance work must be stopped and the property allowed to deteriorate in actuality as fast as the book entries for theoretical depreciation say it does. A mathematical formula founded upon nothing but conjecture becomes more important than the properties themselves.

A company's policy as to provision for retirements or depreciation, as the case may be, can not be lightly changed. Retroactive application of any depreciation formula which might be no more than adequate for future use could readily wipe out (on the books) all of the investment represented by a substantial property in good working order.

Treatment of Stockholders

In both the present uniform accounting systems and the previous ones which were not upheld by the courts, we find what seems to be an effort to separate the stockholders from their properties, and to treat the stockholders as having only a residuary interest in whatever may remain after the public has been served.

The way in which the income account in the new accounting systems has been set up seems to show an intention first to treat the utility enterprise as some sort of a semi-public institution, and then later to introduce those items which have to do with its entity as a corporation and the relations of the corporate entity with the government and with the security holders.

Since 1922 it has been the established rule of the courts that all taxes which would be payable if a fair return were earned must be allowed as an operating expense. (Re Milwaukee Railway and Light Co., P.U.R. 1920 A, 361; Georgia Railway and

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* Reprinted from the July, 1938, issue of The New York Certified Public Accountant.

Power Co. v. Railroad Commission, P.U.R. 1923 D, 1). Yet in these uniform accounting systems there have been taken out of operating taxes, and put into an income deductions account catachrestically called "income taxes" all taxes based on the following items: net income, excess profits, undivided profits, excess dividends and capital stock.

It is not difficult to understand the theories under which these taxes have been excluded from the operating taxes account. Taxes on net income, excess profits and undivided profits evidently were excluded in order that the operating taxes account might be limited to those taxes which would be paid if service were rendered to customers at the bare cost of operation or at an operating loss. The amount considered as operating taxes is not that which would be payable if a fair return were earned, as the Supreme Court has held, but only the taxes which would be paid if no return were earned. Excess dividends taxes and capital stock taxes would appear to have been excluded on the theory that the operating taxes account should contain only taxes necessary to the operation of the utility property, and should therefore not include taxes which relate to the operation of the business in corporate form, although the corporate form may be an absolute necessity to a large enterprise. (For comments on income taxes as operating expenses or as income deductions, see E. M. Bernstein, "Public Utilities and the Income Tax"—Quarterly Journal of Economics, Vol. XLV, No. 3, May, 1931, page 529).

When computing the cost of service and the rate of return earned, the public service commission would apparently be obligated to include in the total operating revenue deductions only the amount which the utility has stated in its accounts as the amount of operating taxes, in accordance with the requirements of the uniform system. This would leave to the company the burden of proving that the accounts which it has kept itself do not show all of the necessary facts.

Increased Taxation

During the past two years the taxes of public utility companies have increased enormously, but this condition will not show in the accounts, as every company would like to have it show. Instead, the operating taxes account will show a decrease, because, in addition to the removal of the taxes mentioned above to the income deductions section of the income account, still other operating taxes must now be charged to merchandise, jobbing and contract work, and to clearing accounts.

The published statements, therefore, will actually conceal instead of reveal the facts unless the companies take care to provide supplementary schedules to set forth those facts which the statements can not show.

One thing which is definitely objectionable is that the item under income deductions described without qualification as income taxes can not be taken as representing what its title unquestionably indicates.

Close Supervision

There is in these uniform systems another feature which should be noticed. One might think that the right to keep its accounts correctly should be an understood prerogative of the company, not a privilege to be bargained for, and granted by the Commission only after the exaction of possibly irrelevant conditions. But there are several cases in which special permission must be obtained from the Commission in order to follow what would in any event be the most correct procedure. These cases are such as: spreading of income, revenue and expense items; disposition of discount, expense and premium on long term debt refunded before maturity; and charging off preliminary survey and investigation expenses.

These uniform systems have been accepted by the companies which must use them, and are in effect, but there are a few things which one could wish might have been otherwise. To enumerate our exceptions would serve no good purpose at this time, but as to some points the objections seem so obvious that silence would be wrong. A few examples follow:

The instructions in the New York State system relative to classification of gas and electric plant at the effective date of the new system of accounts prohibit the inclusion as part of the original cost of amounts charged in previous years to operating expenses, operating taxes, or other income or surplus accounts. No provision is made for the correction of accounting errors which occurred prior to regulation, or even for the correction of such errors made by predecessor companies. (The system of accounts prescribed by the Interstate Commerce Commission for motor carriers of property does permit carriers to revise their existing books before transferring the balances of the accounts to new ledgers set up in accordance with the uniform classification, but that system does not contain any requirements for recording the properties at their aboriginal cost.)[1]

The instructions in the gas and electric systems, as they stand, not only prohibit a company from stating what was the actual cost of its properties at the time when they were first "dedicated to the public service," but require that something else, which is not the cost at all, shall be stated and described as "original cost."

Both the "plant in service" and the "plant acquisition adjustments" accounts, even when the terminology is carefully explained, must still convey by innuendo the impression that the properties are worth only their "original" cost. This original cost, by the way, is not defined as the cost to the person who bought the property from the Indians for beads and bottled beer, but the cost of the property to the person first devoting it to public service.

The words "dedicated to the public service" and "devoted to the public service" are used lightly, and they sound innocent enough, but they should not be allowed to pass by without comment. In the Century Dictionary we find this definition: "Dedicate—In law, to *devote* (property, as land) to public use," and this one, a few pages farther on: "Devote—To addict or surrender; give or yield up." It is not quite like dedicating the Gettysburg Memorial with religious ceremonies.

Other instructions with reference to the property accounts have the effect of disallowing actual costs incurred in connection with piecemeal construction.

Depreciation

Depreciation is required to be based upon "original" cost rather than on actual cost, the difference between that amount and the amount which would be allowed as depreciation under the federal income tax regulations being described as "amortization of plant acquisition adjustments," which, while it may be allowed to stand almost next door to "depreciation" in the income statement, is a horse painted with another color, being excluded from the total operating expenses but included in the total operating revenue deductions.

The instructions require that part of the depreciation cost must be

(Continued on Page 24)

[1] In the Commonwealth Edison rate case, decided by the Illinois Commerce Commission on October 2, 1936, it was claimed by the company that some $40,000 should be added to the cost of plant by reason of failure to capitalize proper overheads. The Commission disallowed the claim.

A Merry Christmas with GAS

GAS is used in a novel way in Bakersfield, Calif., where a gas lighted Christmas tree stands in front of the W. F. Tyler home. At the left the gas piping arrangement is shown, while at night the tree is lighted in all its splendor.

The tree was designed and built by employees of the San Joaquin Light and Power Corp. in Bakersfield, W. F. Tyler, Ernest Rosenberg, Clarence Wooden, and Ernest Bond.

It is 12 ft. high and is made entirely of gas pipe, with 58 gas burners at the ends of as many branches. The trunk is made of a pipe nine ft. long with an extension of three ft. of smaller pipe on the top of which is fastened a five-pointed star made of heavy sheet iron and covered with bronze. The lower branches are four ft. long and at the end of each branch and at the point of each star, metal covers in the form of candles are welded around the burners.

The pipe forming the tree is painted green. Before the paint dried, shredded asbestos was draped around the tree to give a snow effect. The tree is decorated with non-inflammable Christmas tree ornaments placed out of reach of the flames.

The unusual tree has attracted a great deal of attention, and hundreds of people have made a trip to the home to view the Christmas tree aflame with the blue and yellow gas flames.

GAS LIGHTS A YULETIDE CANDLE

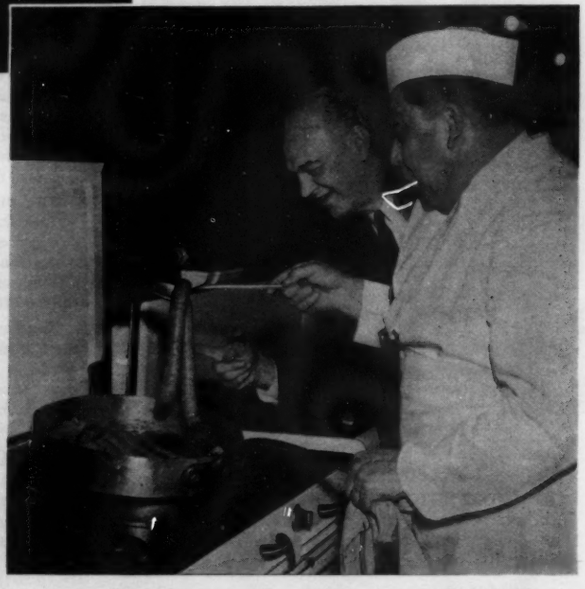
ENTERING INTO THE spirit of Christmas, George Frederickson, vice president of the Oklahoma Natural Gas Co., employed natural gas as the central theme of holiday decoration for his Oklahoma City residence. The natural gas candle, seen below, is 15 ft. high, constructed of 10-in. pipe set in a pan 5½ ft. in diameter. The wick, composed of three-quarter-inch pipe, contained many very small orifices, packed with asbestos and covered with the same material on the outside. A pilot-light arrangement, inside the pipe, generated a flame which kept candle lighted at all times.

GAS Camera

BELOW is shown the luncheon given in South Bend, Ind., by M. B. Skinner Co., for gas company executives and their wives, before the Notre Dame-Minnesota football game.

ABOVE are the first 10 members of The Brooklyn Union Gas Co. sales force to sell five C.P. ranges, together with James J. Deely, retail sales manager. These 10 people sold a total of 103 C. P. ranges the first six weeks of the C. P. drive in Brooklyn Union territory. Left to right are Frances Smith, George Heiderich, Maude Echard, Charles Kreth, Marianne Billies, James J. Deely, Alice Harrigan, Americo Gambo, Bessie Beards, Henry Engel and Anna Tietjen.

BELOW: George Rector, food authority and restaurateur, explains to home service women one of his recipes which he will demonstrate as host at the "Court of Flame," the gas industry's exhibit at the 1939 New York World's Fair. With him are (left to right) Gladys B. Price, Southern California Gas Co., Los Angeles; Jessie McQueen, home service director of A. G. A.; and Mildred R. Clark, Oklahoma Natural Gas Co., Tulsa.



ABOVE: Cartoonist Will B. Johnstone samples Pennsylvania sausage that Cartoonist Jolly Bill Steincke (in chef's uniform) is cooking.

BELOW: The "Gas House Terriers" at the golf tournament held recently at the San Francisco Golf Club. (1) K. B. Anderson, R. L. Hayden, A. B. Allyne, Glenn Foster. (2) L. Wollenberger, Chas. Kirksay, Phil Schafer, Harvey Edmund. (3) W. F. Pape, S. Bloom, Geo. Burdick, Jack Delaney. (4) A. R. Bailey, Geo. Peers, Elmer Campbell, Russ Nance. (5) Geo. Henderson, J. J. McCall, F. F. Doyle, Chas. Thomson. (6) Ted Mess, Bill Euler, Ed Grens, Bert Truett.

● F. H. WINSLOW, Southern Counties Gas Co., Los Angeles, Calif., in a paper, "Testing and Proving Displacement Meters in the Field with Low Pressure Flow Prover," prepared for the Spring Technical Conference of the Pacific Coast Gas Association, held in Los Angeles, April 7 and 8, 1938 and presented before the Southern California Meter Association, Huntington Park, Calif., September 22, 1938.—(Abstract by G A S).

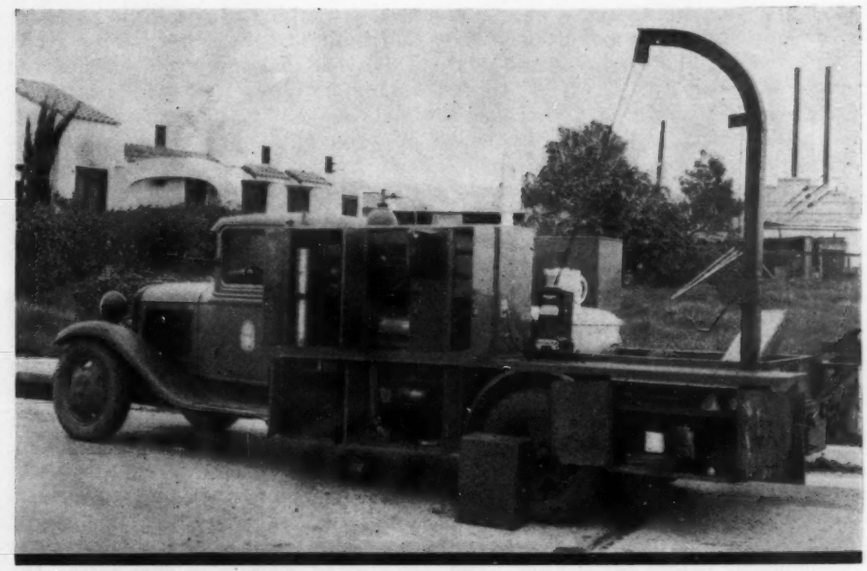


FIG. 1. One of Southern Counties Gas Company's trucks equipped with tools, meter parts, and instruments for the field testing of large capacity meters.

Field Testing of Meters With A Low Pressure Flow Prover

THIS article describes the method used for field testing large capacity meters by the Southern Counties Gas Co. To insure accurate measurement of gas through displacement meters it is essential that they be tested and serviced at regular intervals by competent men schooled for this particular work. The larger the meters the more frequently they should be tested, and it has been found practical and economical to test about once a year all meters in the field that have over 2000 cu. ft. per hour capacity at the manufacturer's rating of a 2 in. differential. Trucks (Fig. 1) with crews of two men each are equipped with the necessary tools, meter parts, and instruments to do this work. Meters are sent to a general repair shop for major repairs.

F. H. WINSLOW

The required information for testing a field meter is as follows:

1. Standard time for passage of one cu. ft. of gas through an orifice used in test.
2. Pressure maintained during the test.
3. Temperature of gas during the test in the meter and prover.
4. Barometric pressure during the test.
5. Observed time required for passage of a definite number of cubic feet through the meter as indicated by the meter index.
6. Specific gravity of gas.

To obtain this information, it is necessary to use instruments that are portable, have a high degree of accuracy, and that can be transported without impairing their accuracy.

The 4 in. orifice meter type flow prover, developed by one of the leading meter manufacturers has been adopted, and it is believed to be superior for a number of reasons to the funnel prover formerly used. The prover consists of two pieces of aluminum pipe, one piece three ft. long, and the other two ft. long, with a set of straightening vanes in the upstream section of pipe. Special flanges equipped with hook bolts and thumb screws are provided, and orifice discs for different rates complete the outfit. As the total weight is only about 13 lbs., it is practical for field use.

Each of the orifice discs is marked on the outlet side with the standard time of the orifice. This standard time is the time in seconds required for the passage of one cu. ft. of air, at the upstream pressure, when the absolute pressure at eight pipe diameters down stream from the orifice is 30.0 in. of mercury absolute, the differential across the orifice is 8.186 in. of water, and the temperature is 60° F. These discs can be made locally or can be obtained from the manufacturer. In either case, they are examined carefully, all machine burrs and excess metal being smoothed out or removed from the orifice edge; thus insuring minimum wear due to handling. They are then calibrated on the 100 cu. ft. bell type prover and placed in a specially designed box for field use. Periodic recalibrations are made, and any changes in standard time corrected and noted.

The advantage of this type of prover and discs over the funnel meter can readily be seen. Where the funnel prover involves the use of rubber plugs in a combination of orifices for a given load, the flow prover has only one orifice; thereby making any variation from the original calibration more easily detected. Ease in cleaning, and the elimination of wear due to the rubber plugs must also be considered in its favor.

One of the main factors and probably the hardest to measure, due to intermittent flow in testing a meter, is the differential pressure. For this purpose a slope gage or incline manometer is used. This consists of a brass tank 5 in. in diameter, and 3 in. high, with a ¼ in. pressure connection in the top, and a 3 in. aluminum channel 49 in. long, mounted on the side at an angle of about 78°. A glass tube of about ½ in. bore, which is the smallest size recommended by the Bureau of Standards for accuracy, extends into the tank through a stuffing box and is secured to the channel. Behind the tube a scale is scribed to measure 9 in. of water pressure in 2/100 in. graduations. This whole set-up is attached to a mounting base for a tripod. Leveling screws and a level of high sensitivity, similar to those used on surveying instruments, are provided to insure accurate seting of the meniscus.

Difficulty in securing consistently accurate results with other types of manometers, led to the development

of this slope gage. First, a gage was made on a stationary mounting in the shop, and, after being checked and approved by the 1930 P.C.G.A. Meter Committee, it was used as a pattern for making field gages, and also as a master for checking them. This gage is still maintained for periodically checking field gages. Results obtained by the use of the field slope gage are much better than those gained with earlier equipment. Proofs on meters have been more consistent over a series of test runs, thereby eliminating unnecessary adjustments that were made before, due to faulty pressure readings.

Temperature of the gas is taken with a bare stem thermometer, marked in one degree graduations, similar to those used in 1/10 cu. ft. wet meters. They are checked with a certified thermometer before being used. The gas temperature in the prover is taken at the outlet of the prover, the thermometer being inserted through an opening about two in. in from the end. The meter temperature is obtained by inserting thermometers on the immediate inlet and outlet connections and using the mean as the temperature. This was found to be the most accurate meter temperature from numerous tests conducted to determine the point at which meter temperature should be taken.

Any accepted Aneroid barometer which compensates for temperature, and any reliable stop watch can be used for taking atmospheric pressure and timing of the meter, respectively.

The original equipment carried for taking gravity is as follows: (1) Portable gravity balance instrument, (2) 400 millimeter mercurial manometer, (3) Barometer, (4) Calcium chloride bottle for drying air, (5) Hand pump, (6) Tripod, (7) Beach umbrella, and (8) Necessary hose and fittings for making connections.

To these were added the following articles: (1) Natural gas cylinder, similar to those used in welding operations, (2) ¼ in. Purox regulator, and (3) Fin tube heat exchanger.

Recently a small portable Ranarex Gas Density Recorder was added.

The balance type of gravity measuring instrument involves considerable time and effort. By the use of the auxiliary equipment previously mentioned, success in eliminating the hand pumping operation from most of the field gravity tests was attained. Instead of air, natural gas of known gravity is used for comparison with the line sample. A cylinder of gas of previously determined gravity is carried and used as a standard for this purpose. The cylinder with a regulator attached is mounted on the truck in a convenient location near a specially designed compartment which contains the balance and a condenser. Connections are made from the cylinder to the gravity balance through the regulator and heat exchanger. The heat exchanger is between the regulator and balance and serves to bring the temperature of the gas very close to atmospheric temperature. Serious errors, due to differences in temperature of the balance and that of the gas, are very probable if a heat exchanger is not used.

FIG. 2.
The truck is driven as close as possible to the meter location and hose line connections are made from the gas line to the balance.

The truck is driven as close as possible to the meter location (Fig. 2) and hose line connections are made from the gas line to the balance. The beam is balanced in the gas line sample, then in the standard gas sample. The gravity of the standard gas being known, the gravity of the gas line sample can be determined by using the following formula:

$$G_1 = \frac{G_s P_s}{P_1}$$

Where:

G_1 = Gravity of gas in pipe line.
G_s = Gravity of standard gas.
P_s = Absolute pressure required to balance with standard gas.
P_1 = Absolute pressure required to balance with gas in pipe line.

This method of taking gravity has three distinct advantages over the first method:

1. Partially eliminates hand pumping operating.
2. Cuts down time necessary for setting up apparatus at each location.
3. Minimizes errors due to insufficient purging.

The addition of the portable Ranarex has greatly assisted in removing the difficulties formerly encountered due to gravity changes which took place on certain lines before the tests were completed. Tests usually run from one to three hours, depending on the number of meters being tested at a location and the amount of repairs and adjustments required.

The Southern Counties Gas Co.'s method and procedure of testing large capacity meters, is fundamentally the same as that used by other gas companies. A meter to be tested is first checked for possible overload, by determining the index rate and differential across the valve while the meter is still in operation. It is then bypassed and the prover attached to the outlet connection of the meter. An orifice disc, for a given rate, is placed in the prover; the slope gage is attached to a pressure connection one pipe diameter upstream from the orfice disc; and the thermometer is placed in a connection one inch from the outlet end of the prover. The valve on the upstream side of the field meter is adjusted so that the reading of the slope gage is about 8.00 in. of water. Gas is then passed through the meter and prover until the flowing temperature in the prover remains fairly constant before any observations are made; then the time required for the increase in index reading, the meter temperature, the pressure reading of the slope gage, the temperature at the outlet of the

prover, and the barometric pressure are noted during a test run of at least 100 seconds. Ten readings each, of the slope gage and thermometers are taken during the run, and the average of these readings is used in figuring the final result. Gravity having been taken either before or after each plate test, the proof can be computed using the following formula:

$$t = 0.1191\ t_s\ V \sqrt{\frac{10{,}000\ GB}{T_f\ h}}$$

Where:

- t = Correct time required to pass V cu. ft. of gas.
- V = Cu. ft. of gas passed through meter during test as indicated by meter index.
- t_s = Time (stamped on orifice plate) required for flow of one cu. ft. of air through orifice when barometer is 30.0 in. of mercury, temperature is 520° F. absolute and differential across orifice is 8.186 in. of water.
- G = Specific gravity of gas (air=1.00)
- B = Barometric pressure in in. of mercury (Corrected to 32° F.)
- T_f = Flowing temperature in °F. absolute.
- h = Pressure drop across orifice in in. of water.

$$\text{Proof} = 100\ \frac{\text{(correct time—observed time)}}{\text{Correct time}}$$

If meter temperature differs from prover temperature, let T_m = average temperature °F. absolute. Then:

$$t = 0.1191\ t_s\ V \frac{T_f}{T_m} \sqrt{\frac{10{,}000\ GB}{T_f\ h}}$$

The proof of a meter is considered to be the average per cent error of three tests, run at different rates of flow.

1. Low rate test (about 700 cu. ft. per hour).
2. Average rate test (average of first and third tests).
3. Consumer's estimated peak hourly rate.

If the consumer's peak hourly rate cannot be estimated or is not available, test number three should be made at the rated capacity of the meter, which is the manufacturer's rating at 2 in. differential.

Some meters, such as the rotary type, exceed the limit of the provers, the largest plate having a capacity of about 15 M c.f. per hour. In this case two provers are used, requiring another man to assist in taking readings.

The average cost to test each meter in the field is about $4.75. This includes labor, material, mileage, and expenses, but not overhead.

FIG. 1. Wind tunnel used in manhole ventilation studies.

The Effect of Wind Velocity On Manhole Ventilation

● G. W. JONES, chemist, Explosives Division, Bureau of Mines, Central Experiment Station, Pittsburgh, Pa.; E. S. BAKER, research assistant, cooperative employee; and JOHN CAMPBELL, superintendent, special service department, Boston Edison Co., Boston, Mass., in a study "Ventilation of Manholes —Effect of Wind Velocity on Natural Ventilation," reprinted from Bureau of Mines Report of Investigation 3412.—(Abstract by G A S).

IN previous reports[1, 2] results were given showing the amount of natural ventilation that takes place in manholes (capacities, 74.1 to 308 cu. ft.) when the number of ventilation openings in the manhole cover ranged from no openings to a maximum of 48.

The tests warranted the general conclusion that the ventilation or air changes taking place in a manhole increase as the area of openings in the cover of the manhole is increased, and are proportional (with the exception of a few erratic tests) to the area of the openings in the cover. The area of the openings was the chief factor that affected ventilation.

The results did not show any marked change in rate of ventilation due to increased capacity or shape of manhole, when the results were expressed in terms of air changes per day versus area of ventilation openings in sq. in. per 100 cu. ft. of manhole space.

It was observed during these investigations that in certain tests that showed erratic results (that is, did not agree with the general average for a given set of test conditions) the wind velocity during the test period was also abnormal. In view of these findings it was decided to conduct a series of tests in which the wind velocity across the openings in the manhole cover could be controlled accurately to determine the effect of wind velocity on ventilation rate.

Manhole and Wind Tunnel

For these tests a manhole of the type used by the Boston Edison Co. in its electric power distribution system was constructed at the Central Experiment Station, Pittsburgh, Pa. The inside cross-sectional dimensions were 60 by 83.5 in., the depth 76 in. measured from the bottom of the manhole to the cover, and the capacity 166.7 cu. ft.

The wind tunnel constructed over the manhole is shown in Fig. 1. The main part of the tunnel was three ft. in cross section and 20 ft. in length. The tunnel was then decreased gradually in cross section to 12 by 14 in.

[1] *G A S*, Nov. 1936, page 24. Jones, G. W., Miller, W. E., Campbell, John, and Yant, W. P., Ventilation of Manholes. 1. Effect of Holes in the Covers on Natural Ventilation: Rept. of Investigations 3307, Bureau of Mines, 1936, 6 pp.

[2] *G A S*, March 1938, page 37. Jones, G. W., Miller, W. E., Campbell, John, and Yant, W. P., Ventilation of Manholes. 2. Effect of the Size of the Manhole on Natural Ventilation: Rept. of Investigations 3343, Bureau of Mines, 1937, 6 pp.

TABLE NO. 1. EFFECT OF INCREASED WIND VELOCITY ON VENTILATION IN A MANHOLE.

Number of Ventilation Openings in cover	Area of openings, sq. in.	Area of openings, sq. in. per 100 cu. ft. of manhole space	Average wind velocity, miles per hour	Ventilation rate, air changes per day	Increase in ventilation due to wind velocity, per cent
[1]48	21.66	13.04	0.0	8.50	78
48	21.66	13.04	9.6	15.10	
36	16.36	9.82	.1	5.74	73
36	16.36	9.82	10.1	9.95	
24	11.07	6.62	.0	4.62	91
24	11.07	6.62	10.0	8.82	
12	5.76	3.45	.7	3.76	39
12	5.76	3.45	7.7	5.22	
6	3.11	1.87	.0	2.56	22
6	3.11	1.87	7.7	3.12	
3	1.56	0.94	.1	2.15	40
3	1.56	0.94	8.0	3.00	
				Average=57	

[1]Six holes 0.812 in. in diameter; remaining holes 0.75 in.

and connected with a rectangular metal-duct line 22 ft. long. This duct led into a building that housed a fan, motor, and other instruments used in the investigation.

A fan of suitable capacity was installed in the building and connected to the metal duct. The experimental manhole was directly under the last section of the wind tunnel, the manhole cover and concrete base surrounding the cover serving as the bottom section of the wind tunnel. The last section of the wind tunnel was constructed so that the top could be removed and tests made under normal outside weather conditions. A six- by six-ft. brattice cloth was erected four ft. beyond the open end of the tunnel and directly in front of it to eliminate wind effects due to atmospheric conditions.

Tests to determine the uniformity of air flow through the tunnel over the manhole cover were made by recording the velocity with a calibrated vane-type anemometer at nine different points over the cross section of the tunnel five ft. from the open end. These tests showed a maximum variation of about eight per cent.

The method of determining the amount of ventilation in the manhole followed that described in a previous report[1]. Table No. 1 summarizes the significant data obtained in these tests.

The results show that the wind velocity or speed at which air passes over the manhole cover has a marked effect on ventilation. The tests made by varying the number of ventilation openings from three to 48 discloses no definite relationship between the percentage increase in the ventilation due to wind velocity and the number of ventilation openings. Increasing the wind velocity across the top of the manhole (irrespective of the number of ventilation openings in the cover) from zero to 10.0 miles per hour increased the amount of ventilation in the manhole on an average of over 50 per cent.

Some of the abnormal results obtained in previous reports in which the average wind velocity was not controlled have been found to be due largely to this cause.

Dangers of Over-Regulation

(Continued from Page 18)

charged to certain clearing accounts or revenue accounts, in which its separate identity is lost. On the other hand, all of the depreciation which is not so charged to other accounts is shown in the income statement in one item, entitled "depreciation," with the result that none of the departmental account groups show either complete cost, including depreciation, or correct totals, excluding depreciation.

The current financial position must be colored in a manner adverse to the company's interests, by the inclusion in current and accrued liabilities of amounts due more than one year from the date of the balance sheet. A compensation award, for example, may include payments not due for twenty years or more.

One point about which every possible care should be exercised is the distinction between "above the line items" and "below the line items" in the income statement, but in these new accounting systems we find the words "Total operating expenses" inserted in the income statement before showing the items:

Amortization of plant acquisition adjustments

Property losses chargeable to operations

and the words "Total operating revenue deductions" before showing the operating portion of:

Income taxes.

In considering the effect of these (and other) requirements of the new accounting systems, it should be remembered that although the following of the uniform system of accounts is required by law, the fact remains that any statements made by a company from its books are understood to be the statements of the company, and not statements of the Commission. Investors, creditors and customers will assume that statements issued by a utility company with a long record of honorable dealing, and certified by auditors having an equally good record, must tell the truth, and they may be misled.

It makes one think of the old story about a witness who interrupted his cross-examiners by appealing to the judge for advice. "Your honor," he said, "I have sworn to tell the truth, but every time I try to do it, one of those lawyers objects."

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Looping a 53-Mile Natural Gas Transmission Line

(Continued from Page 13)

hp. tractors and one RD sideboom tractor. Miscellaneous equipment included 12 pipe hauling trucks, 13 light trucks, and 21 pick-up deliveries.

The job was constructed for Mountain Fuel Supply Co. of Rock Springs, Wyo., under the direction of C. R. Hetzler, vice president and general manager. N. C. Eakin, pipe line superintendent, supervised the work. For the contractor, S. D. Bechtel Co., construction was directed by George S. Colley, Jr., manager of pipe line construction, with Al Berlander, Harry Ferris and "Slim" Roberts as superintendents and principal foremen. Russel Quick was construction engineer, Frank Egan office manager.

In a rather quiet year for the construction of gas pipe lines the Mountain Fuel Supply Co. line is one of the largest installed. Certainly it has proved to be one of the most difficult to construct, due not only to the early onset of rigorous winter conditions, but also because of the inaccessible location of the right-of-way and the extremely rough character of the country through which it passes.

The Preadjustment and Shop Inspection of Appliances

● **R. I. SNYDER and E. H. MOHR, Southern California Gas Co., Los Angeles, Calif., in a paper, "Warehouse Inspection of Refrigerators," (Part I) and JAMES P. DRESEN, Public Service Co. of Colorado, Denver, Colo., in a paper, "Preadjustment and Shop Inspection of Gas Appliances," (Part II); both of which papers were a part of the work of the Utilization Committee of the Technical Section of the Pacific Coast Gas Association and both of which were presented before the Association's Annual Convention at Santa Barbara, Calif., September 14-16, 1938—(Abstract by G A S).**

PART I

IT IS desirable wherever possible to install a gas appliance in such a manner that preliminary adjustments and servicing on the consumer's premises are at an absolute minimum. In spite of rigid factory production inspection, occasional defective units or missing parts are bound to be noted. Damage in transit is also apt to occur. In an attempt to insure immediate consumer satisfaction and a minimum of service expense, a program of warehouse testing and inspection of refrigerators has been successfully followed by the Southern California Gas Co. for some time.

An average of approximately 1200 refrigerators earmarked for ultimate installation on Southern California Gas Co. lines are subjected to the warehouse inspection each month. In fact, 99 per cent of all refrigerators sold in the Los Angeles area are thus treated.

To further insure maximum satisfaction to the consumer after the inspection is made, about 50 per cent of the deliveries and installations are made by trained company men regardless of the agency which sells the refrigerator.

The crated refrigerators, arriving in carload lots direct from the Evansville, Indiana, factory, are inspected immediately for damage which might have occurred while in transit. The refrigerators whose crates show evidence of damage are set aside and held for inspection by the railroad claim agent. Upon reaching a settlement, any damaged refrigerators are repaired (at the expense of the railroad) either in the company warehouse or at the factory, depending upon the extent of the damage. All others are taken direct to the warehouse testing area where they are divided into two major groups, (1) those refrigerators (60 per cent of total) which are to be delivered uncrated to the local Los Angeles area and (2) those (40 per cent of total) to be recrated for shipment to the outlying division distribution points. The refrigerators for local distribution are uncrated, placed on the test line and connected to the gas supply; the others are placed on the test line, the front and rear panels of the crate removed and the refrigerator connected to the gas supply. The actual procedure of the test and inspection is as follows:

1. Orifice: The proper size orifice is installed to deliver the required burner input at 8 in. w.c. pressure (standard service pressure in Los Angeles area). Formerly a regulator set at 5 in. w.c. outlet pressure was used to closely control the actual input to the burner but because of the regulating action of the throttling type thermostat it was found that the regulator was unnecessary, hence this practice has been discontinued.

2. Burner adjustment: The burner is lighted and the air supply is adjusted to produce the proper flame. The burner location is checked with regard to centering and distance from the generator. Using a manometer and a special adaptor to observe the burner pressure, the thermostat bypass is adjusted to produce the proper minimum burner pressure.

3. Leakage of gas: All tubing, connections, etc., in the gas supply line to the burner are completely checked for gas leakage by means of a soap test.

4. Defective and missing parts: The refrigerator is thoroughly inspected for defective or missing parts. All missing parts are supplied and defective parts are replaced.

5. Damaged finish: Most of the cases of damaged finish are on the exterior surfaces and result principally from uncrating. Even this damage is minimized by using a piece of plywood covered with felt between the crate and the refrigerator when uncrating. The almost negligible number of refrigerators having damaged interior surfaces are returned to the factory. Those having damaged exteriors are refinished before being released for delivery.

6. Door seal: The door seal on the refrigerator is checked by inserting a piece of ordinary bond writing paper at various points around the door edge and closing the door on the paper. The seal is considered satisfactory if the paper is difficult to remove by pulling away from the door edge. If the seal is unsatisfactory, necessary adjustments are made to the door assembly.

7. Thermostat: After the refrigerator is allowed to operate overnight, the thermostat calibration is checked by inserting a mercurial thermometer (0-120° F. range) into the freezing compartment as near the thermal element as possible. On manual defrost models the dial setting is adjusted to agree with the actual temperature of the freezing compartment. On automatic defrost models, the thermostat is replaced if the actual temperature does not fall within the prescribed limits for the particular dial setting.

8. Refrigeration failure: In cases where there is inadequate or no refrigeration as observed during the thermostat tests, the unit is replaced.

The working space allotted for this program of testing and inspection is divided approximately into the following areas:

Test line	3,500 sq. ft.
Touch-up and repair	1,500
Storage, etc.	15,000
Total	20,000 sq. ft.

The test line has a capacity of 125 to 150 refrigerators, depending upon

CALENDAR

December

National Exposition of Power and Mechanical Engineering*—Grand Central Palace, New York, N. Y., December 5-10.

Joint National Accounting Conference—Palmer House, Chicago, Ill., December 12-14.

May, 1939

Association of Gas Appliance and Equipment Manufacturers — Annual convention, Roosevelt Hotel, New York City, May 24-26.

June, 1939

Canadian Gas Association—32nd Annual Convention, Royal Connaught Hotel, Hamilton, Ontario, June 1-2.

September, 1939

Pacific Coast Gas Association—46th Annual Convention, Fairmont Hotel, San Francisco, Calif., week of September 4.

October, 1939

American Gas Association—21st Annual Convention, New York City, week of October 9.

* Includes exhibit sponsored by A.G.A. Industrial Gas Section.

FIG. 1. A front view of refrigerators on the test line showing the gas supply manifold and the flexible connectors.

the sizes being tested. Fig. 1 shows a front view of refrigerators on the test line and includes the gas supply manifold and the flexible connectors used to connect the refrigerators to the gas supply.

Although the length of time any one refrigerator will be connected to the test line depends upon the test requirements, the maximum period of time has been 24 hours. However, the average time required of a man per refrigerator for actual test and inspection is 30 to 45 minutes. An average of six men are required to perform all the necessary work of this department. Since this work is one phase of the educational program of the Employee Training Division, only about half of the man power is permanent, the balance consisting of student help in the course of training for consumer service.

PART II

REGARDLESS of how carefully an appliance is designed, how efficient its performance, and how safe its operation, these cannot be assured unless extreme care is used in making the burner adjustments. Safety, performance, efficiency, and durability are all dependent upon the heat input to, and the adjustment of, an appliance, and this fact led the Public Service Co. of Colorado to adopt a preadjusting and shop inspection program whereby each appliance sold by the company is adjusted or inspected before being delivered to the customer.

The first impression is usually a lasting one and this has been found to be exceptionally true of gas appliances. When an appliance is delivered to a customer and requires no adjusting whatsoever, the first reaction is that the appliance is perfect in design and will require little, if any, adjusting throughout its life.

Safety can be assured only so long as an appliance is adjusted to burn the input rating for which it is designed, and any material increase above the designed rating can make an unsafe appliance out of an otherwise safe one. This one factor is probably the most important in justifying an inspection and preadjusting program yet others may appear to be more beneficial.

Satisfactory performance will almost always result with the proper adjustment and this factor most often concerns the customer. Both the fuel and the appliance are judged by the performance of the appliance and, in these days of keen competition from all other types of fuel, this point cannot be too greatly stressed.

Uniform adjustments can be assured by this program since only a few skilled men are assigned to this task. Less inconvenience to the customer and time saved by the installation men are two other factors which this program brings about.

The Doherty Ideal Distribution System is used in all properties operated by the Public Service Co. of Colorado. This system operates with main pressures always in excess of the pressure supplied to the appliances. Individual house pressure regulators are installed in each building just inside the entrance wall.

All residence pressure regulators are weight loaded to give an outlet pressure of six in. water column at small flow. A pressure of five in. water column is usually assured at the appliance, assuming a maximum drop of ½ in. through the meter and a similar drop through the house piping. Thus all appliances are adjusted to operate at a five in. gas pressure at the manifold, and all orifices are sized to deliver the proper amount of gas at this pressure.

Special Inspection Room

A special room has been provided for inspecting and preadjusting appliances before they are delivered to the customer. This room has a floor space of 630 sq. ft., half of which has a 17-foot ceiling and the other half a 24-foot ceiling, with skylights and windows at the top to provide light and ventilation.

Gas is supplied at a pressure of five in. water column to 10 outlets, each having a flexible hose for connecting to the appliance. Six electrical outlets are also available for operating appliances requiring electricity to operate controls, fans, and motors. Each man is supplied with a set of drills, tools, and several oven thermometers. Many of the laboratory instruments are portable so that they can be moved to this room when needed.

The inspection and preadjusting room is a part of the Customer's Shop and is under the direction of the Superintendent of Utilization. The shop foreman is in direct charge of the personnel and is responsible for all activities carried on in this room. The personnel engaged in this work are shop men who have had several years' experience in fitting, appliance installation, and trouble shooting.

Since all appliances sold by the company must be approved by the gas testing laboratory, the responsibility for their proper operation in the field is also shared by this department. The laboratory personnel is frequently consulted when special appliances are received or when standard stock appliances do not function as they were intended to function.

Frequently, special hotel and industrial appliances are sold which have been approved but not tested by the laboratory and, in all such cases, laboratory engineers are called upon to make performance tests, acquire all pertinent information, and make sure that the appliance is satisfactory before it is delivered to the customer. Fig. 2 shows a laboratory engineer and a shop man making a special investigation of several hotel appliances. A recording pyrometer, orsat and portable carbon monoxide indicator with flue gas conditioning equipment used in making determinations can be seen in the foreground.

All laboratory reports are made available to the shop in order to give them all pertinent data relating to each appliance and its operation. The specified orifice and port sizes are given in the reports.

All manufacturers are requested to supply their appliances with fixed orifices and ports drilled according to laboratory specifications. In most cases, the manufacturers are extremely cooperative in complying with reasonable requests.

Summary

Some appliances require more careful checking than others and any program of this type can easily be carried to an extreme. The following briefly summarizes the inspections and adjustments made on each type of appliance:

1. Domestic Ranges: These appliances are given the most thorough inspection of all. The procedure is to inspect the range for defects in mechanical construction and the enamel for chippage. The oven orifice is then checked for size and the oven-pilot flame and safety pilot are adjusted if the range is so equipped. Next, the oven-burner primary air is adjusted and the by-pass flame set to the correct input. The oven is then allowed to heat to 400° F., which is used as a check temperature, and the oven thermostat calibrated. The top-burner orifices are next checked for size and the top-burner pilots and primary air adjusted.

After the range is in apparently perfect adjustment, the shop man usually re-examines all adjustments to be sure that no error has been made. He also extinguishes the safety pilot on the oven several times to be sure that it has been adjusted properly. On ranges with automatic clock-controlled ovens, the clock mechanism is made to cycle several times to be sure that it is functioning as it should.

2. Hotel and Restaurant Ranges, Broilers, Fryers, Bake Ovens, etc.: The appliance is inspected and adjusted similarly to the domestic gas range. Deep fat fryers are adjusted with water in the pot as the heat-absorbing medium and the thermostat calibrated at 200° F. Bake ovens are tested and adjusted similarly to range ovens only that thermocouples are used so that the speed of heating can be checked more accurately.

It has been found necessary to align and fit the various units of hotel equipment together before being delivered, since experience has shown that slight alterations are usually required before the unit fits together properly. This procedure is another important function of the inspection and preadjustment program and has paid big dividends by conserving time when making the installations. This is of considerable value, as installation work is generally performed at night when overtime rates prevail.

3. Circulating and Radiant Heaters: Circulating heaters are always "burned off" and adjusted in the shop. Radiant heaters are seldom adjusted in the shop but are carefully inspected when a shipment is received. Several samples are checked for orifice and port sizes and, if any errors have been made, a man is given the job of sizing correctly the entire shipment before any are installed.

4. Central Furnaces, Boilers, and Floor Furnaces: Central furnaces and boilers are usually picked up from the warehouse by the sheet-metal men and steam fitters who do the installation work. For this reason, these appliances seldom pass through the inspection room, but are inspected when each shipment is received by the warehouse. Floor furnaces pass through the inspection room where orifices are sized correctly and the paints and greases are burned off.

5. Water Heaters: Water heaters are usually delivered to the customer in the shipping crates and no shop adjustments are made. Orifice sizes are carefully checked in the warehouse when shipments arrive so as to insure the proper input.

6. Unit Heaters and Industrial Equipment: Unit heaters are checked in the warehouse when shipments arrive and are sometimes adjusted before being delivered to the customer. If they are to be installed in offices or food stores, they are operated for about a half hour to be sure that the paints and greases are burned off.

Industrial Equipment

Industrial burners, furnaces, and equipment are usually special and, whenever feasible, are tested in the inspection room. The tests to which they are subjected vary with the appliance and application. In all cases, orifices and air jets are sized as closely as possible to suit the application. It has been necessary to use special orifices for large industrial burners and these are made up in the shop and sized for the particular installation.

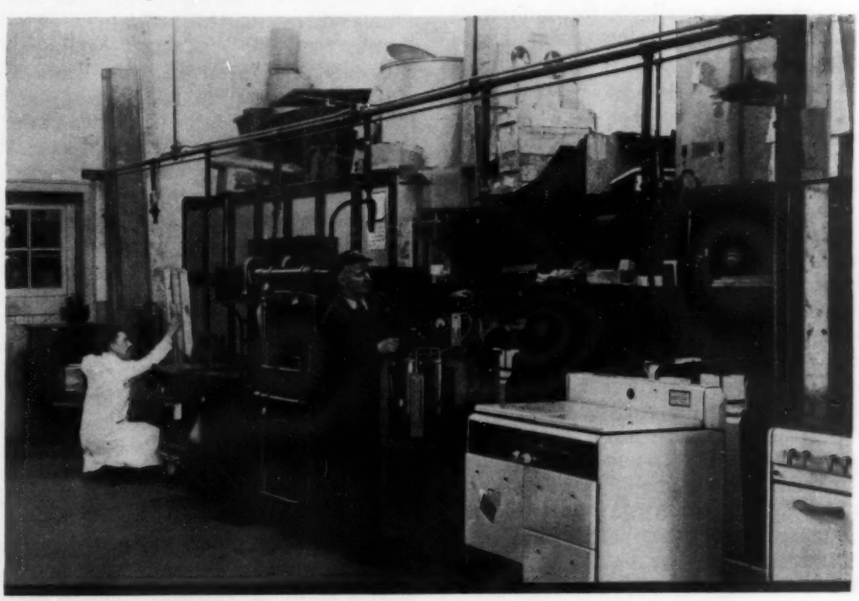
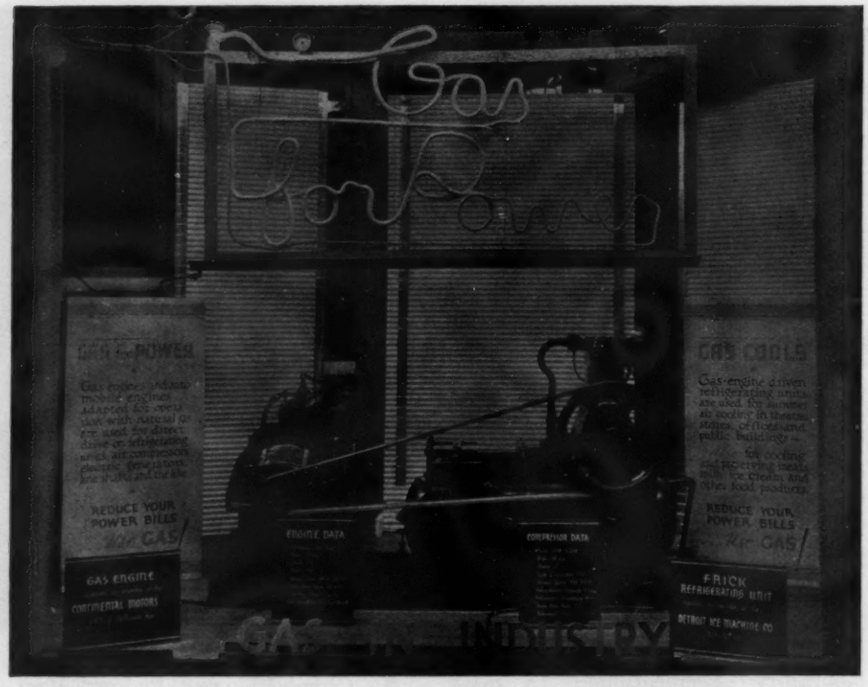


FIG. 2. A laboratory engineer and a shop man making a special investigation of hotel appliances.

Present Status and Trends of Gas Engine Power

• **REPORT OF THE Gas Engine Power Committee, E. P. KRAMER, Atlanta Gas Light Co., Atlanta, Ga., chairman. This report was presented before the Industrial Gas Section of the American Gas Association at the Annual Convention held in Atlantic City, N. J., October 10-13, 1938.—(Abstract by GAS).**



Gas engine power window display—Detroit City Gas Co., Detroit, Mich.

MOST new Diesel engine models being brought out are convertible to gas or can be offered for straight gas operation.* This is a significant recognition by manufacturers who have previously built straight Diesel engines. These sales possibilities are presented in localities where:

a. Low year round gas prices prevail and thereby make straight Diesel sales difficult.

b. A low gas price is available for part of the year during the off-peak gas season. Gas is used off-peak and oil on-peak by converting the engine.

Almost all engine manufacturers who brought out the popular low speed angle type compressor units in recent years are now offering them as power units with the compressor cylinders eliminated. This makes available a straight gas engine of low rotative and piston speeds at reasonable first cost.

Gas engine designers are giving more thought to an increase in compression ratio with the view of increasing the specific output and economy. The Ford Motor Co. is now prepared to furnish as a standard equipment on industrial units, high compression heads giving a compression ratio of 7.5 to 1 with material improvement in economy and some gain in horsepower. The Lincoln Zephyr engine is now available for industrial units with high compression heads with continuous duty rating of about 45 h.p. at 1600 r.p.m.

Waukesha Motor Co. is now offering automatic units of the "Open Type" without the sound silenced cabinet, at a material saving in first cost over the original DeLuxe models.

Some installations are reported where eight cylinder engines are adapted for air compressors by having only four of the cylinders firing and the other four cylinders arranged for compressing air.

Montgomery Ward is now offering the Continental Red Seal power units for natural gas operation.

In England, Germany, Italy, and Jugo-Slavia, the use of manufactured, natural and sewer gas for internal combustion engines is already to a stage where it has public acceptance in use on trucks and buses. This application was encouraged in foreign countries due to the high price of gasoline. However, their experience is now made available to us and it is expected that we will be able to utilize the equipment which they have developed until such time as the business reaches a volume sufficient for its manufacture in this country. The direct fuel cost savings compared with gasoline even in this country are tremendous. In addition to this fuel cost saving another important consideration in the use of gas instead of gasoline for buses and trucks, has already been evidenced in our use of converted automobile engines for industrial power purposes here, wherein the engine maintenance is greatly decreased and the lubricating oil consumption is decreased due to the natural qualities of gas for internal combustion engine use.

An interesting installation at a Chevrolet agency in Oklahoma consists of two Chevrolet truck motors using natural gas. These two engines are belted to an AC generator and are arranged with clutches so that either or both engines may be used to drive the generator. A report received as of May, 1938, showed that the engines had operated steadily for the past three years and the connected speedometer indicated over 200,000 miles on each engine. Many other similar installations are in service throughout this country. One gas company keeps an up-to-date record of good automotive engines available for use in its territory.

Considerable progress is reported on this application. Electrical equipment manufacturers are building induction generators with greatly improved characteristics in power factor and outside excitation requirements. So much can be accomplished with this system that a separate section should be devoted to a complete treatise of the subject.

The utilization of waste heat in the production of power with gas engines is a field which has not been adequately developed in most sections. Some companies, however, are making very satisfactory progress in this.

In the operation of natural gas engines, a relatively small percentage of the heat value for the fuel consumed is utilized, in useful work. The average natural gas engine has a thermal efficiency, in operation, of approximately 25 per cent. The remaining heat is dissipated in jacket cooling water, radiation, friction, and exhaust gases.

The heat in the engine jacket water

*See *GAS*, June, 1938, p. 35., Robert A. Rankin, "The Diesel-Gas Convertible Engine as a Food Builder."

and exhaust gases represents nearly 65 per cent of the total heat value of the fuel. This may be reclaimed, in a large measure, by use of heat exchangers for jacket water cooling and by further water jacketing of the exhaust lines from the engines.

The engine jacket water represents only a minor source of auxiliary heating due to the necessity of maintaining a low temperature differential (not to exceed 20° F.), in the engine itself with maximum jacket water temperature of not over 165° to 170° F. Consequently, if higher temperatures are desired, these must be obtained by further heating, such as means of additional jacketing of the exhaust line.

To illustrate, assume the maximum temperature of the jacket water leaving the engine is 170° F. By water jacketing of the exhaust line, this temperature may be readily raised to 185° F., without restricting the flow of water through the engine.

It has been found that although it is possible to reclaim "waste heat" from an internal combustion engine to the extent of 90 per cent, it usually is practicable to reclaim only from 50 to 60 per cent of the heat. To obtain 90 per cent recovery nearly three times the heating surface is required as would be used to reclaim 50 per cent of the waste heat. The expense of the additional and more elaborate heat exchangers and water jacketing to recover 90 per cent of the waste heat in most cases would be unwarranted economically in consideration of the low gas rates available for direct heating of water wherever gas engine operation would prove an economical source of power.

It has also been proven economical practice to make use of waste heat in exhaust gases and engine jacket water for heating of buildings, factories, etc. For this, a somewhat different type of heat exchanger is required.

It has been forcibly shown that to promote this business requires more than the mere statement of engineering and economic facts. People must be given information in a way to encourage their thorough study and interest. Generally the feeling on the part of those who have never used engines is that the savings shown in the preliminary calculations are not practicable or if they were the gas engine business would have developed in each particular territory to a greater extent. It is not generally realized that people are often slow to change their practices, and that only in the last few years have the gas industry and the engine manufacturers realized what can be done with gas engine power.

Gas Meter shop erected at Metro-Goldwyn-Mayer studios in Culver City during filming of "Dramatic School." In the above scene Luise Rainer plays the part of a girl who works one of the conveyor belts.

A Meter Shop in the Movies

(Continued from Page 16)

for purposes of the play; and no less an authority than W. P. Hutchinson, president of Sprague Meter Co., Bridgeport, Conn., pronounced himself as satisfied with the practicality of the installation. By a fortunate coincidence, Mr. Hutchinson visited Los Angeles at the time the picture was being taken, and due to the fact that some 400 new Sprague meters were used on the set, Honberger arranged for him to inspect the lay-out. After his visit to the studio, he expressed the above opinion.

Authentic meter shop atmosphere was furnished by the installation of six five-ft. provers, and a number of pilot flow benches such as are used to test the registration of pilot light consumption on meters. These, as well as the meters, were supplied from Southern California Gas Co.'s meter shop. The only modern meter shop tools that could not be used, according to Honberger, were electric screw drivers, the noise of which would have interfered with the sound apparatus. Nevertheless, the girls managed to assemble the gas meters in a convincing manner.

Regular studio extras were used in the meter factory scenes. Each girl was trained, according to a studio publicity release, in her particular work, exactly as if she were doing it in a bona-fide factory.

With 20 girls on each side of the belt, which was 60 ft. long, each was allotted a three-ft. space in which to work, with her implements and meter placed directly in front of her. The belt, speeded at a running rate of six ft. to the minute, allowed the girl only 30 seconds in which to complete her piece of work. In addition to the 40 girls at the machines, two girls supplied the material as quickly as it was needed; two girls were at the proving benches and five girls did other necessary work. Two days were given over to the training of the group by Honberger and an assistant from the gas company until each girl was thoroughly familiar with her respective duty.

Miss Rainer, with the task of placing 10 diaphragm pins in her meter within the 30 seconds, had her task down to the fine point of 22 seconds, which gave her ample time to carry on the necessary dialogue.

■ ■

Natural Gas Changeover Planned in Ohio Towns

Plans for changing from manufactured gas to natural gas next year in seven northwestern Ohio towns have been announced by the Ohio Gas Light and Coke Co., Bryan, Ohio. The towns are now being served manufactured gas from a plant in Bryan.

Ed. A. Bowen, manager of the present system, has applied to the city council for a new franchise, which must be granted before further negotiations can be made with the Michigan Gas Transmission Corp. which owns and operates the 22-in. pipe line conveying natural gas from Texas to cities in the central west.

■ ■

Wm. McCall Succumbs

William McCall, foreman in the street department of the Kansas City Gas Co., died Nov. 2 at his home in Kansas City, Kan. Mr. McCall had served with the company since 1904.

THE WOMAN'S Viewpoint

Our Woman of the Month

Meet Gladys Price, service director of the Southern California Gas Co., who has been appointed chairman of the home service committee of the A. G. A. for the forthcoming year by F. X. Mettenet, chairman of the commercial section.

GLADYS PRICE

She has been director of home service for the Southern California Gas Co. for six years. Before that, she was for three years home service director of the Central Arizona Light and Power Co. in Phoenix. Following her graduation from the home economics department of Oregon State College, Miss Price taught home economics for a time in the public schools of Los Angeles, Portland and Seattle. This was followed by a period in which she organized a home economics department for the Seattle Daily Times.

Gladys Price directs a home service department of 17 in the Southern California Gas Co., and is also a former chairman of the home service group in the Pacific Coast Gas Association.

Porcelain Enamel

C-r-a-s-sh! Here we go, breaking rule number one, which is that we are not to be too fatally feminine on this page. But who could resist that adorable Lusterlite baby in the October issue of *GAS* giving the raspberry to porcelain enamel troubles? I couldn't, nor am I alone, judging by the letters received about this lip-crinkled youngster.

His picture was used to illustrate a subject that I'll bet most gas industry women have given less than a passing thought. We see beautiful enameled gas ranges on sales floors and in our kitchens, we appreciate their beauty and how easy they are to keep clean, but few if any of us, until the "raspberry kid" pointed it out, have realized the scientific care, the meticulous research and engineering skill needed to convert an inorganic coating into a lustrous smooth sheet of glass, bringing kitchen beauty and easier care to homemakers fortunate enough to own a porcelain enameled gas range.

If you missed the Lusterlite baby, it would be well worth your while to look him up in the advertisement of the Chicago Vitreous Enamel Product Co. in our October issue.

The Deserted Kitchen

Our old friend Roger Babson, the prodigal prophet, who predicted several years ago the imminent end of the gas business, now predicts that the next 25 years will see many men holding key positions in business replaced by women. He attributes this to the modern kitchen . . . three cheers for the C.P. gas range . . . which has left women freer to give their restless energies fuller scope in wider fields of endeavor.

According to Mr. B., women now inherit and control 67 per cent of all estates probated and are an important factor in 85 per cent of the national wealth. (I know one man who vehemently claims the correct figure is 100 per cent.)

Personally, I refuse to let my heart flutter unduly at the prospect. I think we can contribute more than we have been doing, but I still feel that our bigger chunk of the business pie must be earned by the sweat of our brow, and not by sitting back and waiting for trends or evolution to lay it in our laps.

Pros and Cons

This so-called "equality" business has its disadvantages too. For example, almost every morning as I ride to the office on the subway, I notice that I have the right to stand like everybody else, when the earlier boys have caught all the available seats.

Yet, while I have often seen younger sisters in the subway accept seats with barely a "thanks," from men probably twice their age, I have yet to see a girl surrender her seat to an older woman.

This matter of "woman's inhumanity to woman" is a problem of vital importance as any career girl can well testify.

Interesting Gas Facts

The first gas company in the world was organized in 1812. It was the London and Westminister Gas Light and Coke Co. Some of its earliest pipe lines were made from the barrels of muskets left over from the Napoleonic wars.

The first gas company in this country was charted in Baltimore in 1816. Many of its original cast iron pipes are still in use.

During 1937, although domestic customers used only 27.0 per cent of the natural gas distributed, they were responsible for 65.0 per cent of the natural gas industry's revenue. In the manufactured gas field, domestic users (excluding house heating) consumed 65.0 per cent of the gas, while contributing 75.0 per cent of total revenue received.

That's why domestic business is called the "bread-and-butter" load of the gas industry.

The new C.P. gas range has top burners, a broiler and oven, that will cook with one-third the amount of gas necessary on most ranges at present in general use.

The heating value of gas is measured by the number of B.t.u.s contained in a cubic foot of gas. A B.t.u. (British Thermal Unit) for practical purposes is the amount of heat needed to raise the temperature of one pound of water one degree Fahrenheit. One hundred thousand B. t.u.s make one therm.

A Book Worth Reading

There are some books you read solely for pleasure. There are others you read for self-improvement. Among the latter must be included "If Women Must Work" by Loire Brophy. The author is herself a successful business woman, being recognized as a leading employment consultant and responsible for having guided thousands of women in the

choice and continuation of careers in the business world. Here is a sample:

> "The woman who would look ahead should realize that the old classification of a man's world and a woman's world has been swiftly replaced by another classification entirely new and exceedingly revolutionary. It is the world of work and the world of emotion. Men and women bow their heads and hearts to one another in matters of love, affection, and friendship; but in the business world the only bond is the unity of good work. The world of work embraces every job that a human being can do. Within that world efficiency alone is king, and sex must be ignored. The world of emotion embraces family and social ties."

It is a highly practical book full of advice and information for the woman who wants to get ahead and covers just about everything from applying for a job, getting along with fellow workers and superiors, preparing for advancement, to advice on such matters as business dress, office conduct, living arrangements, recreations and hobbies and the psychology of fatigue.

I can sincerely commend "If Women Must Work" for your "must-read" list.

■ ■

Ohio Gas Co. Demonstrates Gas Cooking To Girls' Group

Miss Hulda Ungericht, home service director of the Ohio Fuel Gas Co., Columbus, Ohio, demonstrated Oct. 8 before leaders of the Camp Fire Girls organization in Columbus how to prepare a "streamlined" dinner in 30 minutes. Two weeks later the standardized menu was prepared in the home of each Camp Fire girl in Columbus. The home service department will meet with the girls again this month when they will be given instruction in candy making.

The company cooperates with the various girl groups whenever requested as an aid in building future gas sales.

■ ■

W. G. Zepf, Consolidated Gas Co. of N. Y., Passes

William George Zepf, formerly cashier of the Consolidated Gas Co. of N. Y., died Nov. 15 at his home in Brooklyn, N. Y., following a heart attack. He was 72 years old.

Mr. Zepf joined the Consolidated Gas Co., now known as Consolidated Edison Co. of N. Y., 49 years ago, and retired in 1936.

■ ■

Peoples Gas Co. Publishes News Magazine

A news magazine, *The Big Four*, is being published by The Peoples Gas Light and Coke Co., Chicago, for architects, builders, dealers and realtors. The eight-page magazine deals with the "big four" phases of the gas industry—water heating, space heating, gas cooking and gas refrigeration.

Kitchen Parties—A Social Hit With Appliance Prospects

● **EDNA MOHR, Pennsylvania Power & Light Co., Allentown, Pa., in a paper, "Kitchen Parties—A Plan to Increase Load," presented before the Home Service Breakfast at the 20th Annual Convention of the American Gas Association, Atlantic City, N. J., October 10-13, 1938.—(Abstract by G A S).**

THE Pennsylvania Power & Light Co. was among the first to make use of the "Kitchen Party" as a sales promotional plan. Having experimented with, developed, and extensively conducted "Kitchen Parties," we have found them to be a most effective sales activity for use in Home Service work.

The "Kitchen Party" is nothing more than a platform demonstration informally conducted in the kitchen of a new user. Those attending are friends and neighbors of the new user who do not own an automatic range and refrigerator. They number from six to 15 persons, depending on the size of the kitchen. The party in most cases is arranged by the sales representative who has made the sale. All the preliminary work, that is, preparing of foodstuffs, assembling of materials and equipment for the demonstration, is done in the company kitchen so that a minimum of inconvenience to the homemaker will be realized. At this time, a large cake (angel food or sponge) is baked to be presented as a special gift to the homemaker. In some instances, if an automatic refrigerator is installed in the home, a frozen dessert is prepared to be served after the demonstration, which aids the home service or sales representative in introducing the story of automatic refrigeration.

The home service representative and sales representative arrive in the new user's home about one hour before the guests assemble in the kitchen. Cooking equipment is placed and the demonstration table is arranged. The procedure from this point is similar to that of a platform demonstration except that the sales representative takes part by introducing additional services such as automatic refrigeration and automatic water heating. Portions of the food are served to the guests. Our usual practice has been to prepare a broiler luncheon which is presented to the homemaker in addition to the cake baked in the morning.

The "Kitchen Party" has proved valuable for many reasons. It is an inexpensive form of salesmanship, each party costing from $2.50 to $3.00, depending on the type of program used. The audience of a "Kitchen Party" is selective, that is, only those attend who are without the appliance in their own home. They are all potential purchasers. The group is small, all constraint is removed and questions are freely asked.

Over 600 of these parties were conducted for the company and dealers during the past two years. Checking our reports for actual sales results in just one of the company's eleven Divisions, 71 ranges, nine refrigerators and several small appliances were reported sold to homemakers attending "Kitchen Parties" during the past six months. I can therefore, definitely assure you that the Pennsylvania Power and Light Co. feels that this activity, the party in the customer's home, has proved to be a most effective plan to build load.

■ ■

Wisconsin Utility Issues Employees' Quarterly Report

The Wisconsin Public Service Corp., Green Bay, Wis., is now issuing regular quarterly reports to its 1498 employees. In this report the employees are informed of the company's revenues and expenses, its employment situation, and the status of production.

The report is part of a program started by the company to inform employees directly of the various company problems and conditions.

■ ■

Dorothy Klauer Joins Gas Service Co. in Kansas City

Dorothy Klauer has joined the home service department of The Gas Service Co., Kansas City, Mo. After a short training period with Mildred Rittenhouse, home service director of The Wyandotte County Gas Co., Kansas City, Kan., Miss Klauer will be assigned to home service work in various branches of the company. Miss Klauer is a graduate of Iowa State College at Ames.

■ ■

Natural Gas Bonds Voted

A proposal for issuing revenue bonds in the amount of $21,000 for piping natural gas into the town from a nearby line has been approved by the citizens of Centreville, Miss. The line would cost approximately $38,000, the remainder to be appropriated by the WPA.

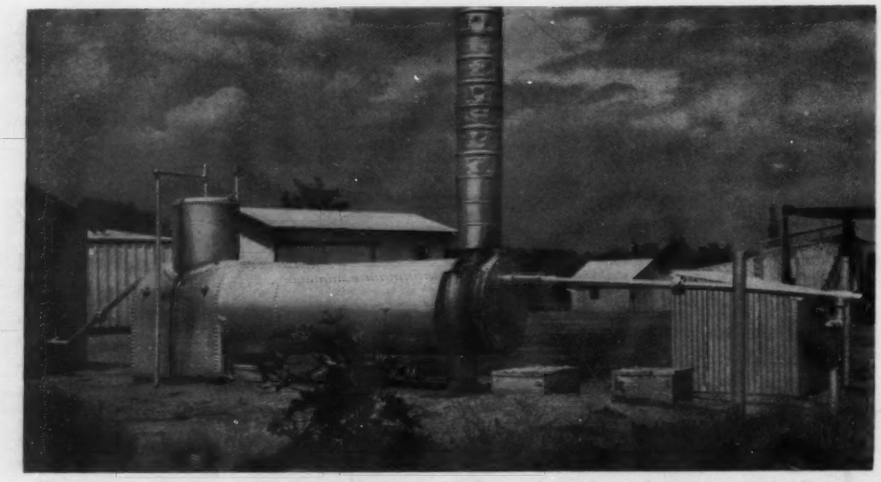


FIG. 1. Ohio Oil Company's improvised gas heater, where locomotive type of oil field boiler is set for gas to pass through, when raising the temperature to prevent frosting of regulators and reducing valves. The installation is in use in the Cement Field, Okla.

Improvised Gas Conditioner Used By Ohio Oil Company

GAS is produced in considerable quantities in the Cement field in Caddo County, Okla., with varying reservoir pressure, but all containing hydrocarbons which condense and cause plugging of lines if not removed, and water vapor which tends to freeze at the pressure reducing regulator. It is therefore necessary to heat the gas ahead of this regulator.

The equipment set up by Ohio Oil Co. to condition the gas for pipe line runs, includes an old and otherwise unserviceable oil field boiler as the principal item (see Fig. 1). Other equipment consists of drips, between the well and the boiler, and between the regulator, down stream from the boiler, and the pipe line connection.

The standard hook-up in this field consists of a four-in. line from the Christmas tree and master gates at the well, which line is continued to the boiler setting. Running beneath the surface of the ground, the four-in. pipe is connected to a standard field drip to catch fluid, which is blown at intervals to storage tanks set for the purpose of holding gasoline. Near the boiler, the four-in. pipe rises at an angle with welded connections, such as 45 degree ells, and enters the boiler through the smoke box door. A hole is cut in the flue sheet at both ends of the boiler through which the four-in. line is passed, welded to the boiler at both points.

Flexible couplings, such as pipe line sleeves, are used to afford adequate space for contraction and expansion of the pipe to prevent undue stresses upon either the pipe or boiler. The pipe is not made up as a coil, but is a single line passing through the boiler above the flues, and the shell of the boiler is not required to carry any gas.

The function of the boiler is to generate heat by exchanging temperature from water within the shell to the gas passing through the pipe. Water is pumped into the boiler until the dome is about half full, determined by observing the level in a gage glass attached to one side, and a fire lighted in the regulation combustion chamber. Heating is regulated by hand control, the amount of gas required depending upon the volume of gas passing through the connections. The volume of gas produced from each well remains fairly uniform throughout its flowing period, and when the flames have been adjusted, heating may be obtained without the necessity of operating a thermostat control on the fuel line.

The pressure regulation instrument is placed downstream from the boiler setting, enclosed in an adequate building, and is set to permit a constant and predetermined volume of gas to flow from the well to the transportation system. The gas from the wells has a normal flowing temperature which ordinarily would not cause freezing of moisture, but when it is expanded from a possible 500 lbs. on the well side of the regulator to pipe line pressure, refrigeration has been observed when heating upstream from the regulator has not been obtained.

The boiler heating system is considered much the safest method of handling gas, as no contact between flames and pipe is encountered. Water kept at sufficient level to cause submergence of the four-in. pipe can be maintained sufficiently hot that adequate temperatures are transmitted to the gas. Safety measures consist of a low pressure relief valve attached to the niggerhead flange of the boiler, through which vapors from the water pass, and through which gas can be carried safely to a vent line some distance from the setting, if and when the four-in. pipe develops a leak.

The cost of such an installation is obviously not large, as unserviceable boilers are utilized which have only a junk steel value. Piping for building such a system is no more expensive than that used with direct fired heaters, and deterioration is lessened to a marked degree, due to the fact that oxidation is not appreciable. Maintenance is said to be small, and operation is almost negligible, as water evaporates slowly, and when once fired, regulation is not necessary excepting when gas volume is reduced radically.

■ ■

G. D. Fonner Retires from Service with Columbia Co.

G. D. Fonner, superintendent of the Allegheny District and agent of the Glenshaw City gas plant, branches of the Columbia Natural Gas Co., Pittsburgh, Pa., retired from his duties November 1, according to announcement made by J. French Robinson, president of the Peoples Natural Gas Co. and the Columbia Co.

Mr. Fonner, 61, began his career in the gas industry in 1897 as an employee of the American Natural Gas Co. The company was renamed Columbia Natural Gas Co. after being purchased by Peoples Natural Gas Co.

Lloyd King has been appointed superintendent of field work of the Allegheny District, and Alex Burnett, present agent of the Zelienople, Pa., District of Columbia Natural Gas Co., will have charge of the Glenshaw City plant.

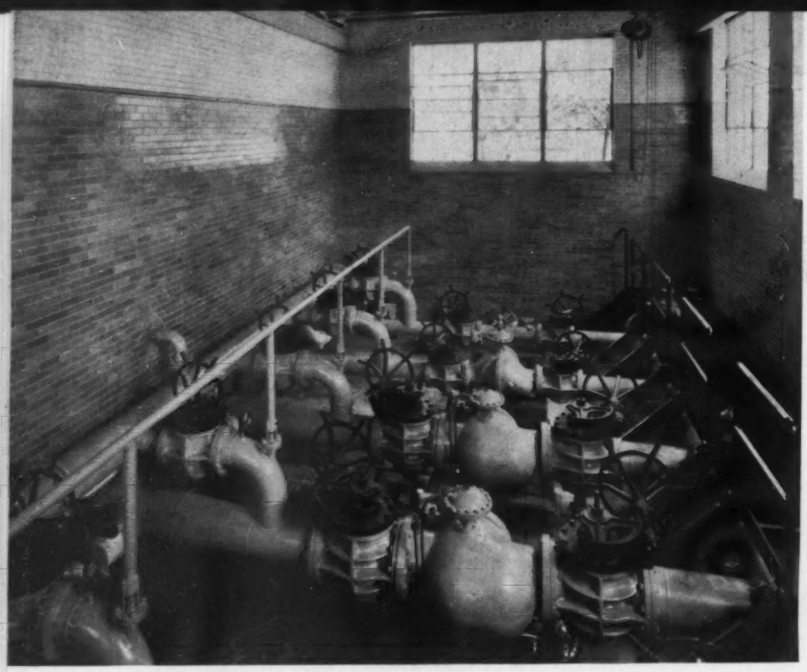
■ ■

Northern Natural Completes New 41-Mile Gas Line

The Northern Natural Gas Co., Omaha, Neb., has completed construction of a new 16-in. O. D. natural gas line extending from the company's compressor station near Ventura, Iowa, to a point about 16.5 miles north of the Iowa-Minnesota state line. Approximately 41 miles in length, the new line runs parallel to an existing 16-in. line, and will materially increase capacity for deliveries in the Minnesota area. Construction began August 14, 1938.

The pipe has been primed and coated with hot enamel at a central point near Joice, Iowa, and wrapped with regular pipe line felt.

—"Holy Cats, THESE
NORDSTROM VALVES
must HAVE NINE LIVES"



Nordstrom Valves and Emco Regulators on natural gas distribution lines.

They all say there's MULTIPLIED SERVICE *in* NORDSTROMS

Superintendent says:

"By way of summation I want to say that our Nordstrom Valves are *doing the hard jobs well.* I don't have to worry about leaks or other valve failures when away from the plant."

Chief Engineer says:

"Prior to installing Nordstrom Valves we estimated our valve repairs at about $5.00 per month per valve. Nordstroms, requiring practically no repairs, have greatly reduced this figure."

Production Manager says:

"We are operating with fewer line troubles than ever before, thanks to a policy of installing Nordstroms as replacements. Clogged valves and frequent difficulty of opening and closing ordinary valves are troubles non-existent where Nordstroms are used."

Plant Chemist says:

"We can now procure valves that withstand practically any chemical reaction by selecting Nordstroms made of special alloy metals."

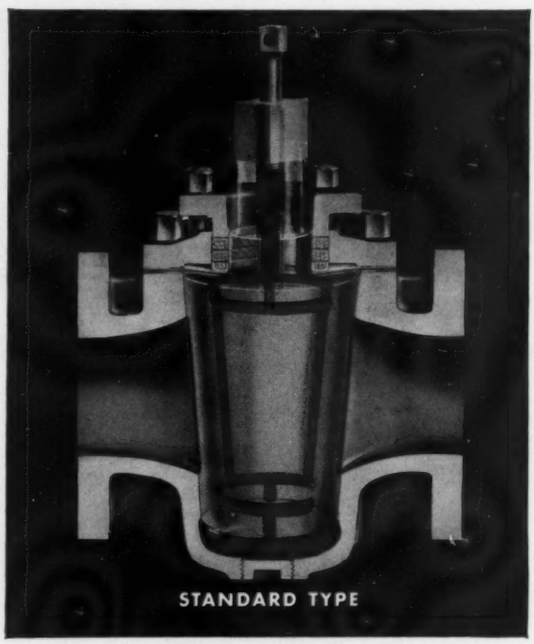
Purchasing Agent says:

"The cost of Nordstrom Valves is less than any other type in our plant, based on comparative service, up-keep cost and time saved by employes."

Pipe Linesman says:

"My work of checking valves is a lot easier with Nordstroms. Easier to turn—and I can tell at a distance whether they are on or off."

BULLETINS GIVE FULL DETAILS



Nordstroms are the all-purpose utility valves, made for almost every service in field and plant. Sizes ½" to 30". Pressure-tested to 10,000 lbs., according to specifications and type. Temperatures from —150° to +600 °F.

MERCO NORDSTROM VALVE CO.
A Subsidiary of
PITTSBURGH EQUITABLE METER CO.

Main Office: Pittsburgh, Pa. *Branch Offices:* New York City, Buffalo, Philadelphia, Columbia, Memphis, Chicago, Kansas City, Des Moines, Tulsa, Houston, Los Angeles, Oakland. *Canadian Licensees:* Peacock Brothers, Ltd., Montreal. *European Licensees:* Audley Engineering Co., Ltd., Newport, Shropshire, England.

PRODUCTS—NORDSTROM VALVES; EMCO GAS METERS and REGULATORS; PITTSBURGH LIQUID METERS

NORDSTROM VALVES

WITH PATENTED "SEALDPORT" LUBRICATION

Only Nordstroms meet every major valve need

Plans Made For Gas-Electric Conference Dec. 12-14

THE Joint National Accounting Conference, sponsored this year by the American Gas Association and the Edison Electric Institute, will be held Dec. 12, 13, and 14 at the Palmer House in Chicago. This is the second national conference of the gas and electric industries.

The registration desk will be open Monday, Dec. 12, and the general sessions will begin at 9:00 A. M., Tuesday. Monday will also be used for group committee meetings. The principal themes are to be accounting economics, ethics and accounting personnel training, and depreciation and plant accounting problems. Speakers of national reputation, representing governmental regulatory agencies as well as educational, engineering and manufacturing phases of the business, will address the conference.

B. S. Rodey, Jr., of the Consolidated Edison Co. of N. Y., Inc., is chairman of the General Accounting Committee, and G. H. Bourne, of the Commonwealth & Southern Corp., New York, is vice chairman. Heading the Classification of Accounts Committee is R. B. Curran of The Connecticut Power Co., New London, Conn. Chairman of the Customers' Relations, Commercial Accounting and Collections Committee is K. E. Boyle, The Dayton Power and Light Co., Dayton, Ohio, and C. E. Kohlhepp of the Wisconsin Public Service Corp., Milwaukee, Wis., heads the Depreciation Committee.

■ ■

Liversidge and Bryans In New Philadelphia Co. Posts

At recent meetings of the board of directors of the Philadelphia Electric Co., a subsidiary of the United Gas Improvement Co., Philadelphia, Horace P. Liversidge was elected president, and Henry B. Bryans executive vice president. William H. Taylor was elected to succeed John E. Zimmermann as chairman of the board of directors. Mr. Zimmermann will continue to be chairman of the executive committee.

Mr. Liversidge, who has been vice president and general manager since 1926, joined the Philadelphia Electric Co. in 1898. Mr. Bryans has been identified with the operation of gas and electric utilities for many years, and has been with the Philadelphia Co. since 1923, serving as vice president in charge of operations from 1929 until the present time.

■ ■

Convention Cruise Planned By Southern Gas Ass'n

The 1939 annual meeting of the Southern Gas Association will be held in March in the form of a five-day round trip cruise from New Orleans to Havana on the S. S. Rotterdam. The Holland-America liner will sail from New Orleans at noon on Sunday, March 19, will arrive at Havana at 8:00 A. M., Tuesday, sail from Havana Wednesday at 3:00 P. M., and arrive back at New Orleans at noon Friday, March 24. Inquiries concerning reservations should be addressed to H. H. Allen, manager of the convention department, 587 Fifth Ave., New York City.

President H. G. Bonner, Knoxville, Tenn., and W. H. McInnis, first vice president, Memphis, Tenn., will conduct the general sessions to be held Monday, Thursday and Friday mornings. At this convention will be inaugurated the policy of having addresses presented by leaders of other industries, one of whom is to be Elmer Wheeler, president of Tested Selling Institute.

■ ■

Charles K. Heebner, United Engineer Executive, Dies

CHARLES K. HEEBNER, construction manager of United Engineers & Constructors, Inc., and an employee of United Gas Improvement system companies for 32 years, died in the Germantown Hospital, Philadelphia, on November 14. He was 54.

On June 18, 1906, Mr. Heebner began his association with the U.G.I. system, entering the employ of the Philadelphia Gas Works as a street clerk. While with that organization he became assistant fitter foreman and fitter foreman. In 1910, he went to the Northern Indiana Gas & Electric Co., Hammond, Ind., as shop foreman. In 1912 he became engineering assistant of the People's Gas Light Co., Manchester, N. H., and, in 1917, superintendent of the Wyandotte County Gas Co., Kansas City, Kansas. In 1918 he became erecting engineer of the J. A. P. Crisfield Contracting Co. When that company was merged into United Engineers & Constructors, Inc., Mr. Heebner became construction manager of the new company, which position he held until his death.

He entered Drexel Institute in 1901, and was graduated from the mechanical arts and electrical engineering courses.

■ ■

Changeover Completed in Sacramento Valley Towns

The Pacific Gas and Electric Co.'s crew of 100 men have completed installation of domestic equipment in Live Oak, Gridley, Thermalito and Durham to accommodate the changeover from manufactured to natural gas along the main line recently constructed in Sutter and Butte counties, California. The changeover in these four towns was made directly.

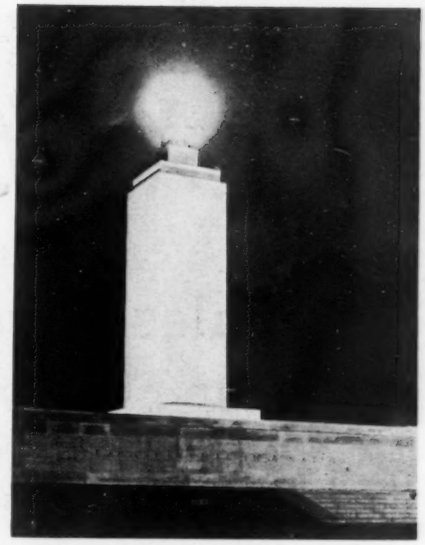
In Chico and Oroville, the next towns to be changed over, the natural gas will be reduced in heat units by a mixture of air so that both new and old burners may be used while the work is in progress. Yuba City and Marysville changes will be made by the use of a mixture of natural and manufactured gas, the gas plant in Marysville being capable of supplying the manufactured gas.

The new gas main now under construction to Colusa has been completed to Meridian, and is expected to be laid soon across the Sacramento River.

■ ■

Gas Engineers Elect Hulcy

The Natural Gas Engineers Association, an organization formed last year to promote relations between the Texas College of Arts and Industries at Kingsville, Texas, and gas companies sponsoring the gas engineering course, has elected Louis Hulcy, senior gas engineering student, president. Mr. Hulcy is the son of D. A. Hulcy, executive vice president of Lone Star Gas Co.



Night view of the gas-fueled light of Peace burning in the Oak Hill Memorial near Gettysburg, Pennsylvania.

Natural Gas Lights Peace Memorial In Pennsylvania

THE Peace Memorial on Oak Hill, Pa., near Gettysburg, dedicated July 3, 1938, by President Franklin D. Roosevelt, is being lighted by natural gas supplied by the Gettysburg Gas Corp., Pittsburgh, Pa., a subsidiary of the Columbia Gas & Electric Corp. The large flame, burning in a bronze urn which surmounts a shaft constructed of Alabama rockwood limestone, is controlled by a spring-wound clock in the base of the monument and burns 12 hours during each 24-hour period. The memorial is 47½ ft. from ground to top of urn.

The burner was designed by Thomas E. Wood, industrial engineer for the gas company, and was constructed at a cost of approximately $60,000, the funds having been contributed by Pennsylvania, New York, Wisconsin, Indiana, Tennessee, Virginia and Illinois, and the federal government. Paul Phillipe Crete was the architect and Lee Lawrie the sculptor.

■ ■

Walter Reid of Southern Union Gas Co. Passes

Walter Reid, 40, chairman of the board of the Southern Union Gas Co. and its affiliated companies, died of a heart attack at home in Dallas, Texas, Nov. 4.

Mr. Reid invented the Reid vapor-pressure apparatus to measure gas pressure, and was chairman of the board of the New Mexico Eastern Gas Co., New Mexico Gas Co., and Southern Union Utilities Co. Until 1925 he was connected with the Lone Star Gas Co., serving as superintendent of gas measurement before he resigned to conduct experimental work in gasoline extraction.

■ ■

Bradbury Leaves Graham Co.

W. T. Bradbury, formerly plant superintendent for the Jas. Graham Mfg. Co., Newark, Calif., has been appointed sales manager for the Florence-Wehrle Stove Co., Newark, Ohio.

SALES Slants

For Sales Success — Get the Other Fellow's Viewpoint

SAYS Dale Carnegie in his best selling *How to Win Friends and Influence People:* "If there is any one secret of success, it lies in the ability to get the other person's point of view and see things from his angle as well as from your own."*

How well-spoken and true! There would be a great deal less friction in this old world if only a few more of us would embrace such a viewpoint. And, getting down to cases, more sales could be made, more satisfied customers created, more "complaints" adjusted without leaving a "bad taste," and as a result, an even more prosperous business could be built up —if *everybody always* would try his very best to see the other fellow's viewpoint.

"That's a swell idea," you may say to yourself, "and something ought to be done about it."

Yes, it is a swell idea. But it's not worth the paper this is printed on if it isn't put into practice. Letting "George do it" doesn't work out because "George" is never on hand at the crucial moments.

To you, the most important person in the world is yourself. This does not mean to say that you consider yourself a "wise guy," "big shot," or the like. It means that you, quite naturally and inescapably, consider everything in terms of how it will affect *you* and *your* life. So do we all. And so does your prospect and your customer.

We are all individualists. But, to get along in the world, we can't go around acting in disregard of other people's rights and viewpoints. So you'll find that the fellows who do get along—the men and women who make a success—are the ones who promote their own welfare by the seemingly paradoxical method of considering and promoting the *other fellow's* welfare.

So why not do as every successful salesman does? He adopts the "you" idea. He doesn't say "*Our* policy is so-and-so." Nor, "You're wrong and I'm right." He says "This is to *your* advantage, Mrs. Smith, because etc." Or, if Mrs. Smith is objecting to something, right or wrong, he says "I can see *your* viewpoint, Mrs. Smith, and can understand why *you* feel as *you* do; however . . ." (and he diplomatically gets over his point).

That is using the "you" attitude.

■ ■

Important Trends in the Field of Sales Management

SUCH constantly changing factors as markets, competition and buyers' needs, call for continuous study of the sales management function according to "Functions of the Sales Executive," a report recently issued by the Metropolitan Life Insurance Company. The report is based upon a survey made by the Metropolitan's Policyholders Service Bureau of the practices and experiences of 120 manufacturing concerns.

Many important trends in the field of sales management were brought out in the course of this investigation. Some of the more significant of these are:

1. More careful and scientific sales planning.
2. Greater centralization of authority over basic sales policies.
3. Increasing decentralization of responsibility for execution of the sales program.
4. Sharper division between responsibilities for planning and executing the sales program.
5. Increasing application of the principle of specialization to sales work.
6. Growing influence of the sales executive in the councils of the company.

The scope of the sales management function is discussed under four general divisions as including those relating to (a) the sales program, (b) the product, (c) the market and other "outside" factors, and (d) the sales organization.

One section of the report discusses the duties of sales executives under various types of organization setups, and is illustrated by case studies. Another analyzes the way in which the sales manager spends his time. Others deal with the assignment and delegation of functions within the sales department, the nature and amount of field work done by sales executives, and the coordination of sales with other phases of the business.

■ ■

Six Cardinal Rules Every Salesman Should Follow

AN old hand at the selling game has six cardinal rules that every earnest salesman might do well to pin in his hat under the warning *"Stop! Shut Up! Listen!"*

First, he grants that one should be a good, convincing talker—but only after he has learned to be a good, convincing listener. There is only one way you can find out what a prospect has in his mind: *let him tell you.*

Second, the successful salesman learns to overcome the desire to interrupt. Until the prospect has had his say, he is not ready for a sales demonstration.

Third, school yourself to get a clear and fair idea of your prospects objections before you try to answer them. You will never sell until you have cleared out the last trace of doubt in the customer's mind.

Fourth, train yourself to steer clear of controversy. If there must be an argument, make sure you aren't in it.

Fifth, don't let the prospect do all the questioning. Ask a few yourself before you try to convince him of something he may already know.

Sixth, if you have been a good listener and a good inquirer, you will have discovered what the prospect wants and how you can convince him he should have it. Simmer your closing argument down to one main issue.

■ ■

Southern Union Co. Conducts "Heat for Health" Drive

The "Heat for Health" campaign, sponsored by the Southern Union Gas Co., Dallas, Texas, was brought to a close Sept. 30 with New Mexico Gas Co. leading the other companies in the contest by $2,000. The campaign began August 20.

The grand total sales for the contest were $70,240.51 as compared with last year's $44,200.

* Reprinted from "The Blue Flame" of Philgas Department, Phillips Petroleum Co., Detroit, Mich.

P.C.G.A. Will Continue Cooperative Advertising

THE continuation during 1939 of the cooperative advertising program of the Pacific Coast Gas Association has been approved by participating companies, according to an announcement made recently by President H. L. Farrar. This will be the 11th continuous year of this promotional effort, the purpose of which is to carry a gas sales message through the media of coast wide circulation.

The Association's campaign is planned and executed by A. C. Joy, Pacific Gas and Electric Co. and J. S. Spaulding, Southern California Gas Co. J. C. Knollin of Gerth-Knollin advertising agency is preparing copy for January advertisements and plans for publicity features. Companies contributing to the 1939 campaign are Coast Counties Gas and Electric Co., Pacific Gas and Electric Co., San Joaquin Light and Power Corp., Santa Maria Gas Co., Southern California Gas Co. and Southern Counties Gas Co. The 1939 budget totals $39,500. Publications to be used are:

Domestic publications: *Sunset Magazine, California Parent-Teacher, California Federation News, Parent-Teacher Journal, California Homes, California Homes Plan Book.*

Dealer publications: *Western Home Furnisher, Western Plumbing and Heating Journal, G A S.*

Trade journals: *Architect and Engineer, California Arts and Architecture, Building Standards Monthly, Building Contractors Forum, Pacific Coast Record, Western Hotel Reporter, Keeler's Pacific Hotel Review, Western Baker, Western Confectioner and Ice Cream News, Pacific Laundry Journal and Dry Cleaner, Beauty, Western Machinery* and *Steel World.*

■ ■

Annual Statistics Reveal 1937 Natural Gas Gains

The annual statistics of the natural gas industry for the year 1937 as compiled and recently issued by Paul Ryan, chief statistician, American Gas Association reveal the progress made by the industry through comparative figures from 1929 to 1937.

For total natural gas customers, the comparative figures are: 1929, 5,848,000; 1936, 6,771,000; 1937, 7,006,000. Sales to gas customers (millions of cu. ft.) were: 1929, 989,449; 1936, 1,214,579; 1937, 1,314,493. Revenue from sales (thousands of dollars) were: 1929, $374,082; 1936, $410,607; 1937, $441,232.

In 1937 there were 235,000 more natural gas customers than in 1936. The industry's gas sales in 1937 surpassed 1936 by 99,914,000 Mc.f., and its customers in 1937 paid in $30,625,000 more revenue than in 1936.

■ ■

Santa, Jr., Promotes Ranges

Using youth and animal appeal in their Christmas campaign for selling C. P. ranges, the American Stove Co., Cleveland, Ohio, has introduced Santa Claus, Jr., who is a boy dressed in Santa's clothes and beard. With him is a dog, Scotty, who tells people that "a Magic Chef is a gift of thrift." L. C. Ginn is the company's sales promotion manager.

View of a kitchen in a San Gabriel Village home. Glimpsed through the open door is an automatic gas water heater. Standard kitchen equipment includes a gas range, gas refrigerator, with heat for the rest of the home supplied by a dual floor furnace.

California Housing Project Specifies Gas Appliances

NATURAL gas for cooking, water heating, space heating and refrigeration is specified at San Gabriel Village, a new large scale housing project which is attracting widespread attention throughout southern California. The village is in process of construction near the old San Gabriel Mission, 10 miles east of Los Angeles. Described as the first project of this sort in the West, the development is a promotion of Percy Bilton, Ltd., a London firm which has made a name for itself in the English building world by erecting a series of self-contained units, made up of from 800 to 1500 dwellings, in and near London. The plan of the San Gabriel Village is similar in character, but not in detail, to its English prototypes.

The village will cover 160 acres when complete, and will consist of about 840 two and three-bedroom homes. The houses are erected in units of 50 at a time, enabling the firm to build on a mass production basis. Economies thus produced allow a selling price for an individually designed, well constructed home as low as $3666 and no higher than $4225, financed through FHA. It is claimed that this price is from $1000 to $1500 under that asked for any house of similar size, design and construction to be found anywhere.

An automatic gas water heater and a dual floor furnace are standard equipment in each one of the houses. The kitchen is piped for gas cooking and for gas refrigeration, and in addition, gas is piped to the fireplaces in the larger homes.

Under the present construction schedule, the Bilton company expects to complete 250 houses by the first of the year. Between 50 and 60 were finished by the end of October, and at least 10 are already occupied. Interest in the project is great, fully 60,000 people having visited the spot since it was started.

■ ■

Gas Service Co. Offers $50.00 Natural Gas Course Prize

The Gas Service Co. has offered a prize of $50.00 to the student who completes in one year and has the most thorough comprehension of the home study course on natural gas offered by the extension division of the University of Kansas. The course must be completed between September 1, 1938, and September 1, 1939.

A similar prize is being offered for the completion of the home study course on American gas practice given by Columbia University.

■ ■

P.U.A.A. To Hold Meeting

Howard F. Weeks, president of Public Utilities Advertising Association, has announced that the first western regional conference of the Association will be held in Kansas City on January 31. Official program and convention hotel will be announced later.

P. C. G. A. Section Chairmen Appoint Committee Heads

LEADERS of the various committees and sub-committees of the Technical Section of the Pacific Coast Gas Association have been appointed for 1938-39, according to an announcement of H. G. Laub, Southern California Gas Co., chairman of that section. The chairmen appointed are:

Distribution Committee: C. P. de Jonge, San Diego Consolidated Gas and Electric Co.

- Dust Problems: J. Louis Oberseider, Southern California Gas Co.
- Leakage: D. B. Larson, Portland Gas and Coke Co.
- Measurement and Regulation: Wm. A. LaViolette, Pacific Gas and Electric Co.
- Construction and Maintenance: L. L. Biggs, Southern California Gas Co.
- Special Problems: Frank Wills, Pacific Gas and Electric Co.

Transmission Committee: S. S. Donaldson, Southern California Gas Co.

- Large Volume Measurement: T. K. M. Smith, Industrial Fuel Supply Co.
- Compressor Stations: T. Hume West, Industrial Fuel Supply Co.
- Pipe Lines: C. F. Briscoe, Southern California Gas Co.
- Pipe Protection: W. R. Schneider, Pacific Gas and Electric Co.

Utilization Committee: M. A. Richford, Pacific Gas and Electric Co.

- Air Conditioning: Glen Miller, Southern Counties Gas Co.
- Appliance Installation: R. I. Snyder, Southern California Gas Co.
- Special Problems: Jas. R. Dresen, Public Service Co. of Colorado.

H. W. Edmund, Coast Counties Gas and Electric Co., chairman of the Sales and Advertising Section, has appointed A. F. Rice, Southern California Gas Co., chairman of the Domestic Sales committee, and Louis Wollenberger, Coast Counties Gas and Electric Co., chairman of the Commercial and Industrial Sales committee. Mr. Wollenberger has selected J. H. Gumz and C. C. McRae both of Pacific Gas and Electric Co., as an editorial committee on Utilization Data Bulletins, for which the committee offers $5.00 for accepted subjects.

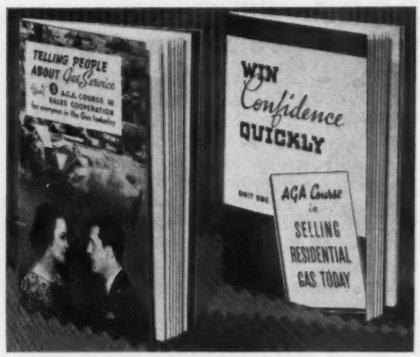
Accounting Section Chairman G. M. Thomas has announced that L. W. Coughlan, Pacific Gas and Electric Co., will sponsor a study on the segregation of charges between maintenance, removal cost and capital. R. N. Dreiman, Coast Counties Gas and Electric Co., will sponsor a study of units and minor items of property.

■ ■

Address on Gas Advertising Published by A.G.A.

"What National Advertising Is Doing for the Gas Industry," an address delivered at the 20th Annual Convention of the American Gas Association in Atlantic City, N. J., October 13, by Colonel Willard Chevalier, publisher of *Business Week*, has been issued in booklet form by the A.G.A. Copies of this 14-page booklet may be obtained from the Association headquarters, New York City.

View of the facade of Northern Indiana Public Service Company's remodeled office at Fort Wayne.



Salesman and volunteer load builders in gas companies throughout the country are now using the books pictured above, first sections of two new A.G.A. Courses now under way.

New Sales Courses Offered By American Gas Ass'n

During the last week in November, companies which have already enrolled in the new A.G.A. courses in "Selling Residential Gas Today" and "Sales Cooperation for Everyone in the Gas Industry" began their first classes.

The first Unit of each Course has been distributed to the enrolled men. The course for salesmen is illustrated with pen and ink drawings; that for the general employees is illustrated with photographs. In addition to the texts for the enrolled men, each course includes a guide for executives in charge of the activity, and meeting manuals for the use of group leaders in holding classes based on the texts.

The course in "Selling Residential Gas Today" brings to the salesman tested methods for building a growing volume of sales to satisfied customers. The course in "Sales Cooperation for Everyone in the Gas Industry" enables the enrolled gas company to tap the potential power of its employees in paving the way for greater sales through their business and social contacts. It provides the information and stimulation necessary to unify the entire personnel behind the sales activity.

The A.G.A. has prepared descriptive brochures on these two courses which are available, without charge, to any gas company executive.

■ ■

Northern Indiana Remodels Fort Wayne Offices

THE Northern Indiana Public Service Co. has completed the major part of the remodeling of company offices in Fort Wayne. The first floor offices are completely redecorated and now house the accounting and credit departments, which formerly occupied the second floor of the Fort Wayne location. This change was made for the convenience of customers, the majority of whom pay their service bills at the gas company offices, according to T. J. Kelly, divison manager for Northern Indiana Public Service. (See picture at left.)

Both the interior and exterior of the offices have been remodeled along modernistic lines. Two ultra-modern kitchens are being installed for the display of new gas ranges and the demonstration of gas refrigerators and appliances.

MORE and MORE

GENUINE
LUSTERLITE
PORCELAIN
ENAMEL
To Clean: Merely wash with soap and water. No other care required to retain this lifetime lustrous finish
(Always allow appliance to cool before cleaning)

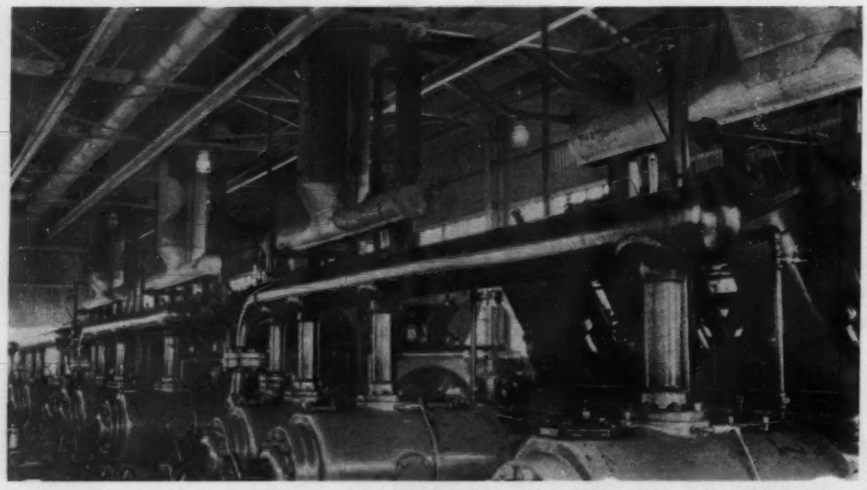
More and more range and heater manufacturers are learning the sales value of identifying their finished product with this emblem of quality. It is, in itself, a salesman because it tells the world that on *your* product you have put the best finish money can buy. Then too, the correct cleaning instructions which have been incorporated in the LUSTERLITE label helps to impress upon the mind of the purchaser the ease with which the lifetime lustre of LUSTERLITE may be maintained.

● Make certain that your product is finished with LUSTERLITE enamels and that every finished piece carries a LUSTERLITE label. The label, which is here reproduced life size, is so colorful it lends eye-attraction to your product. The name LUSTERLITE gives instant assurance of the finest of porcelain enamel.

CHICAGO VITREOUS ENAMEL PRODUCT CO.

1405 South 55th Court CICERO, ILL.

LUSTERLITE PORCELAIN ENAMEL



Exhaust jackets that may be used either for removing hot air from compressor station or, by reversing flow of air, for heating building in winter. United Gas Pipe Line Company's Shamrock, Texas, compressor plant.

United Gas Pipe Line Builds Dust Proof Compressor Plant

WHEN the United Gas Pipe Line built its compressor station two miles west and one mile north of Shamrock, Texas, the lay-out of the plant included the most modern methods for compressing gas, caring for machinery and consideration for the health of employees and their families. The field from which gas is obtained lies in the immediate neighborhood, but the reservoir pressure is such that it will not boost gas to any great distance, therefore all gas moved from the field is passed through compressors so it will be delivered to the end of the line, which is at Wichita Falls, Texas.

Two buildings are used in this plant, the first containing the compressors and engines, and the second, the auxiliary equipment, consisting of two vertical, four-cylinder, 110-hp. gas engines, connected directly to 94-kva., three-phase, 60-cycle, 440-volt generators which furnish power for lighting buildings, grounds and employee residences and for pumping cooling water. Other equipment includes an air conditioning system, that not only heats the air for warming buildings, but washes it completely with water sprays to prevent dust from entering from the exterior. A small plant shop is housed in the auxiliary building for drilling, grinding and cutting with power saws. All necessary lathe work is obtained at local machine shops, several of which are located in Shamrock.

Due to weather conditions which have prevailed in the Texas Panhandle for several years, causing "black dusters" to pass over the area at rather frequent intervals during the spring months, the plant as a whole, as well as employee residences, are air conditioned. Buildings erected to contain compressors and engines, as well as the auxiliary equipment, were constructed with the idea of making them dust-proof. Conventional steel buildings were erected, using the usual type of corrugated steel siding and roofs, but lapping the seams a sufficient amount to exclude air and dust at these points. Conventional steel sash windows were installed with rubber cushions at the point of contact, so that when they are closed and fastened with the locking-bars, no air may creep through carrying finely divided earth particles. Instead of doors carried on overhead tracks with rollers, all entrances are provided with doors hung on hinges. All sides and ends of these doors are equipped with brass weather-stripping, using felt strips for bearing points, which further increases their effectiveness.

Washed air is used in both buildings when dust conditions are considered damaging to equipment, using fresh air without recycle. The air conditioning system is installed in the auxiliary building, and consists of air-washers, using sprayed water to remove foreign matter circulated by motor driven centrifugal pumps, recirculated from collecting pans where mud and foreign matter are removed from the system.

As the system is designed to remove dust from air entering the buildings and to heat them in winter, no provisions are included for humidity control and cooling during summer. Two systems are included in one, with a common unit handling intake air and removing dust and abrasives and two circulating fans or blowers for directing air to each building. The auxiliary room containing the equipment receives air directly from the washing machinery by a vane controlled fan that delivers air to an overhead distribution system which has grilles for equal distribution, and contains its individual steam heating element in the bonnet above the blower outlet.

The same equipment washes the air for the main building housing the engines and compressors, but a separate fan carries the clean air through two 30-in. underground ducts to this room. The distributing air duct for the main building is located on the north side and extends the full length of the room for equal heating and distribution of clean air. When temperatures are below normal or uncomfortable and low enough to cause difficulties in equipment, heat is applied to the incoming air by steam. A 60-hp. boiler is installed in the auxiliary room with piping leading to the heating elements, consisting of aerofin coils, where the washed air passes to pick up the required temperature. The air conditioning system in both buildings is designed so that a differential pressure may be obtained within the rooms, operating up to as much as one lb. more than outside pressure if conditions require.

If cold weather alone is prevailing, with no dusty air entering the buildings, the main room containing the compressors and engines may be heated by the engine exhaust, supplemented by air from the conditioner as required. Jackets are placed over the exhaust piping, covering the header from each pair of cylinders, slotted at the lower side to permit suction or discharge of air. Each jacket is connected to a common duct running the full length of the engine room, and is equipped with a constant speed fan which may be operated either as an exhaust unit, withdrawing air from the jackets and discharging to the atmosphere, or the fan may be reversed and discharge air from the top of the building, closing off the exhaust vent, and thus circulating air downward through the jackets and distributing

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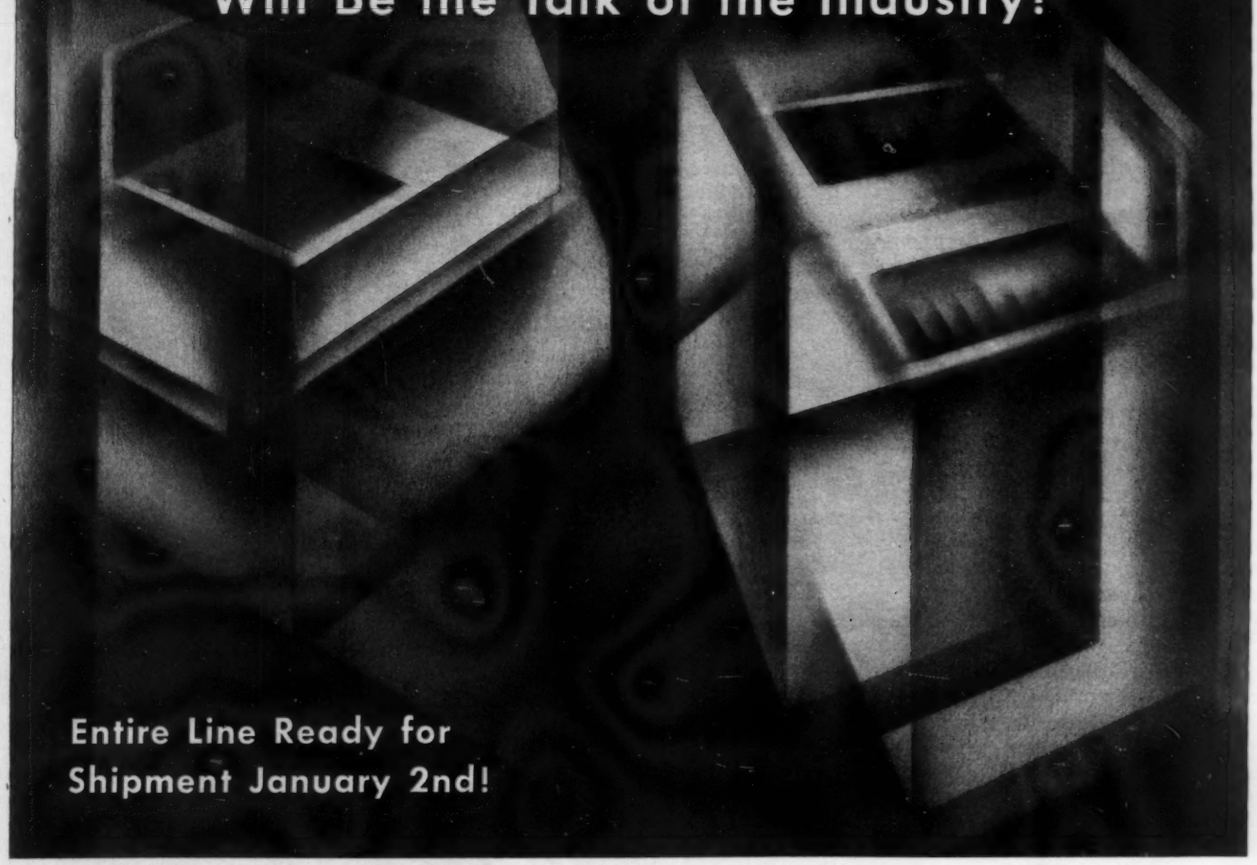

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Portion of air conditioning and heating system used by United Gas Pipe Line Co. in its Shamrock, Texas, compressor station.

it equally over each engine and thence to the building itself.

As the air handled by the central conditioning system is passed once only through the unit, no fumes are held in the building, nor is there a concentration of gases, which might pass through piston rod packing, or seep through flange gaskets that could break down while in use. And to further eliminate disagreeable odors within the compressor building, the crankcase breather is led to the outside through piping. A header was installed over the cam-shaft housing, attached to several holes tapped into the case. This header was attached to a vent line extending upward and outward from the engines and passing through the engine room wall to discharge fumes to the atmosphere. Air for combustion in the power cylinders is taken from outside the building, utilizing oil bath elements to insure air free from abrasives.

Residences built for employees are located on the property, reasonably close to the compressor station, with lawns seeded to grass and trees planted for shade. The soil in this area is a medium sandy loam that responds readily to cultural conditions without requiring fertilizer in appreciable quantities. The houses themselves are both four and five room structures, each equipped with forced draft gas fire furnaces with ducts arranged for one pass or recycled air for heating, and all air passing through the equipment, either fresh or recycled, must flow through the filters; thus providing conditioned air for each room as it enters through the distribution grilles.

As this station was placed on the line December 22, 1937, it has seen service during part of one winter, and fortunately "black dusters" have been conspicuous by their almost total absence. However, the conditioning units were operated during some of the high windy days, and operators in the plant speak highly of the efficiency in eliminating dust from the buildings.

■ ■

Guyer Appoints A.G.A.E.M. General Policy Committee

The following members of the Association of Gas Appliance and Equipment Manufacturers have been appointed by E. R. Guyer, president, to serve on the General Policy Committee to consider matters of Association policies:

H. N. Ramsey, Welsbach Co., Gloucester City, N. J., chairman; H. L. Whitelaw, American Gas Products Div. of American Radiator Co., New York; John Van Norden, American Meter Co., New York; N. R. Feltes, Bastian-Morley Co., LaPorte, Ind.; John A. Fry, Detroit-Michigan Stove Co., Detroit; Geo. A. Humphrey, General Gas Light Co., Kalamazoo, Mich.; E. L. Payne, Payne Furnace and Supply Co., Beverly Hills, Calif.; F. H. Ramage, Republic Steel Corp., Cleveland, Ohio; F. E. Sellman, Servel, Inc., New York; W. Frank Roberts, Standard Gas Equipment Corp., Baltimore, Md.; F. H. Adams, Surface Combustion Corp., Toledo, Ohio; H. A. Wilson, Wilcolator Co., Newark, N. J.

■ ■

Two Central Missouri Gas Companies Consolidate

The Community Gas Service, Inc., has been formed recently by the consolidation of the Central Missouri Gas Service Co. of Washington, Mo., and the Community Gas Co. of St. Louis. The new company will occupy offices now being constructed near Clayton on Ladue Road.

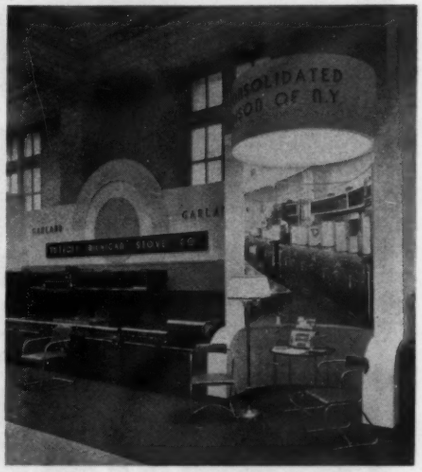
New officers of the company are John H. Hayward, St. Louis, president; W. B. Wilson, vice president and general manager; Harry Hall Knight, vice president; Leo Bergin, secretary. R. H. Ohlson of Washington will be sales manager in St. Louis. The office at Washington will continue to be operated as the Central Missouri Gas Service Co. with Oscar Ohlson as manager.

■ ■

Mid-West Gas School Held At Iowa State College

The Mid-West Gas Association and Engineering Extension Service of Iowa State College conducted the 18th Annual Mid-West Gas School and Conference November 14, 15, and 16, at Iowa State College in Ames.

Following the general meeting, at which papers by Dr. Alfred R. Powell of the Koppers Co., Pittsburgh, and H. D. Valentine of the Peoples Gas Light & Coke Co., Chicago, were presented, group meetings were held by the five sections of the conference. At these group meetings papers were presented covering gas production, distribution, service and utilization, installations, and metering.



View of the commercial gas cooking equipment exhibit jointly sponsored by the A. G. A. Industrial Gas Section and the Consolidated Edison Co. of N. Y.

Gas Exhibit Is Feature of National Hotel Exposition

THE Industrial Gas Section of the American Gas Association and the Consolidated Edison Co. of New York, Inc., jointly took over 80 ft. of booths at the 23rd National Hotel Exposition, Grand Central Palace, New York City, Oct. 24-28, and made it possible for manufacturers of heavy-duty gas cooking equipment to display the latest in hotel, restaurant and institutional kitchen appliances.

Scattered throughout the hall were booths of manufacturers of commercial gas cooking apparatus, and the booths of producers of miscellaneous laundering and dish-washing apparatus using gas burners.

On the sidewall of the combined gas booth a huge, jolly chef sipped from a poised spoon, and, with his right hand precisely pinching the air, exclaimed "Be wise! *Modernize* with automatic GAS heat."

The American Gas Association—Consolidated Edison Company display at the National Hotel Exposition was one of four organized and conducted each year by the Industrial Gas Section's Committee on Displays at National Industrial Expositions. C. Foster Clark, Michigan Consolidated Gas Co., is chairman of the Committee, and Eugene L. Milener of the American Gas Association and Robert V. Howes of Consolidated Edison Co. of New York, Inc., organized the show.

■ ■

A. Braunschweig Appointed

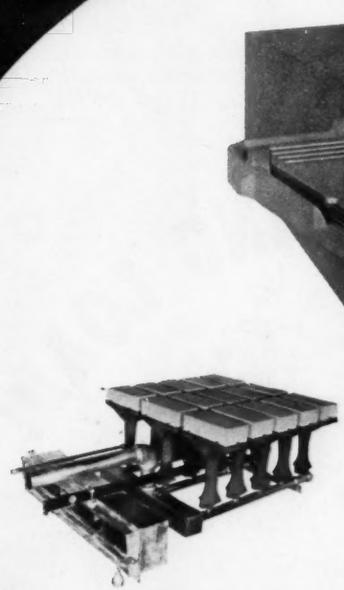
Arnold Braunschweig has succeeded Everett Hein as superintendent of the Wisconsin Gas and Electric Co., Watertown, Wis., following Mr. Hein's transfer to Fort Atkinson as superintendent.

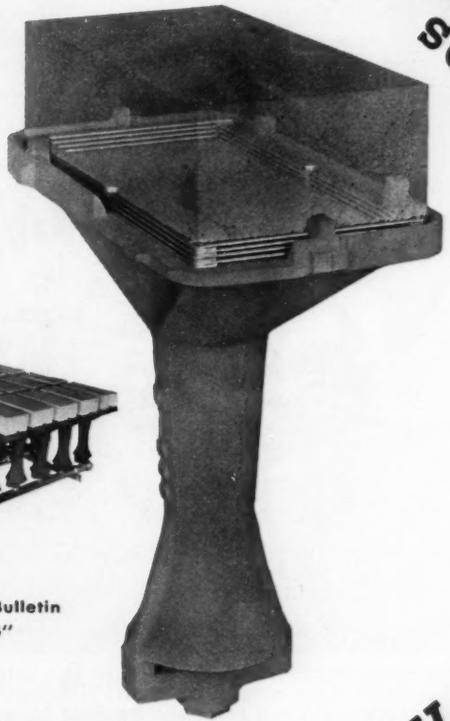
The Improved

WEBSTER

F600 SERIES GAS BURNERS FOR ALL HEATING BOILERS WITH

Multiple Port Interchangeable Grills – Improved Venturi – Unique Baffles





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Pacific Coast Distributors

NATURAL GAS EQUIPMENT, INC.—LOS ANGELES—SAN FRANCISCO

F. J. Evans Engineering Co. - Birmingham Gas & Heating Specialty Co. - Dallas Mechanical Equipment Co. - Houston

Sound truck used by the East Bay Unit of the Gas Appliance Society of California to tie in with the Fall Gas Range Campaign of the Society.

New and Old Ranges Parade In Fall Sales Campaign

A SUCCESSFUL publicity stunt was used by the East Bay Unit at Oakland, of the Gas Appliance Society of California, during the Society's Fall gas range campaign.

According to E. W. Kimmell, Unit secretary, the feature of the plan was a procession headed by a sound truck and followed by a manufacturers' float of new model ranges and a scavenger truck with obsolete ranges.

Covering the trucks were signs such as "It's Time to Change Your Range," "Headed For The Last Round-Up — Modern Ranges Took Their Place," "Does Your Old Range Belong Here?", "Why Use A Horse-and-Buggy Range?" and of course the campaign slogan, "Cook The New Way With Low Temperature."

The procession passed through the shopping sections of downtown Oakland, Alameda, Berkeley, and San Leandro, and also through a portion of the residential areas of those cities, covering 80 miles the first day and a total of over 250 miles for the four days it was used.

Through a loud speaker system, special announcements of the features of the campaign were made, radio broadcastings were picked up and rebroadcast. In a number of instances, programs secured over the air were followed up by spot announcements conducted by the Gas Appliance Society of California over radio networks.

According to Mr. Kimmell, results indicate that the Fall range campaign not only resulted in a material increase in sales but an exceptionally high Unit volume of ranges sold.

■ ■

Marshall, Texas, Approves 30-Year Gas Franchise

The Marshall, Texas, city commission has recently approved a 30-year franchise, presented by S. E. Woods, Jr. and others, for the right to serve natural gas to the city of Marshall, according to an announcement made by H. J. Graeser, city manager. It is planned to pipe the gas to Marshall from Marion or Harrison county fields, a distance of about 12 miles.

Proposed gas rates as outlined in the franchise would be 14c per thousand for the first 250,000 cu. ft. per month; 12c per thousand for the next 250,000 cu. ft.; 11c per thousand for the next 500,000 cu. ft.; 10c per thousand for the next 9,000,000 cu. ft.; 9c per thousand for the next 10,000,000 cu. ft.; 8c per thousand for all over 20,000,000 cu. ft. These rates would be in effect only so long as the gas could be transported under natural or well pressures.

■ ■

Carnegie Natural Gas Co. To Build 27-Mile Line

The Carnegie Natural Gas Co., Pittsburgh, Pa., has announced that contracts have been let for the construction of a 27-mile pipe line which will connect the new natural gas field on Chestnut Ridge in Fayette County, Pa., with an existing 12-in. line at Waynesburg in Greene County, Pa.

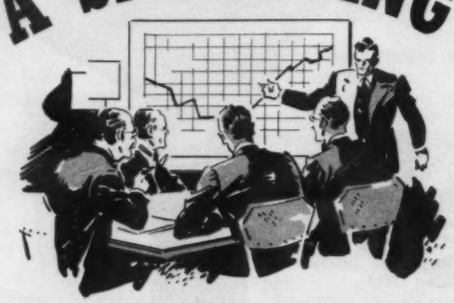
The new line will be constructed of welded eight-in. seamless pipe, and will cost approximately $600,000.

■ ■

Lone Star Co. Transfers Industrial Engineers

Joe Kaufman and P. K. Giffin, industrial engineers for Lone Star Gas Co., have been transferred to new headquarters, according to an announcement by E. J. Hatzenbuehler, chief industrial engineer. Mr. Kaufman has been sent from the Dallas office to Corsicana, and Mr. Giffin from Dallas to Cleburne. The local offices of Community Natural Gas Co. will be the headquarters for both men.

BUILD A SATISFYING LOAD!



...and keep your customers satisfied. Recommend Pacific Gas Heaters. There are no complaints when you specify Pacific. All Pacific Gas Heaters are equipped with the famous Pacific Multi-Tubular Burners and assure *troubleproof operation* and the utmost satisfaction. Pacific heaters carry a guarantee backed by a company with the experience and reputation of a quarter of a century. Pacific makes a gas heater for every purse and purpose. The only complete line manufactured in the West.

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SIX BURNERS—DOUBLE OVEN
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The most beautiful Wedgewoods ever built! A complete line of Certified Performance Models with superior Wedgewood quality from top to bottom. Never before have Pacific Coast designs been so beautiful! Sleek, modern styling in dazzling white Wedgewood super-porcelain finish. Flush to wall construction. Recessed solid bases. Streamline and vented back guards. Smart chromium handles. Folding cover tops. Divided cooking tops. Distinctive Lamps and Clocks. High-speed Low Temperature Ovens. Giant and Standard Speed-plus-Simmer Burners. Smokeless Astogril Broiler. Every burner self-lighting!

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ALWAYS WEDGEWOOD QUALITY . . . MAKES FRIENDS FOR GAS

Gas THE MODERN FUEL

Some Results of Tests on Domestic Gas Meters

ORDINARY gas meters* have been regarded with distrust by the general public almost since they were first used. While there may have been some justification for this attitude at first, there is little today.

To make more certain that, on the one hand, the user receives all the gas he pays for on the basis of the meter indication, and on the other, that the gas company receives credit for all the gas the meter shows was delivered, the requirements of gas-meter testing are rather exacting. In the District of Columbia, for example, no gas meter can be placed in service unless it has been tested and passed by or under the personal supervision of the gas inspector of the Public Utilities Commission. The Commission, together with the chairman of the American Gas Association's Committee on Meters and Metering, sought the Bureau's cooperation in studying possible sources of difference in gas-meter tests.

*Excerpt from the National Bureau of Standards, *Technical News Bulletin*, Nov., 1938.

The first step in this study was to analyze and evaluate possible sources of errors. Next, tests were made on about 125 meters to compare different methods of using the index hands in making a test, and the relative abilities of several operators. Official tests of over 75 meters were observed and checked. Other tests were made of operators' abilities to stop a gas-meter test hand at a desired position and to set and read gas-meter prover scales. Some of the results of these tests may be summarized as follows:

1. There is no definite change in the condition or proof of a gas meter, as indicated by the successive tests made in this study.

2. On the average, the operators stopped a meter test hand within 0.002 in. of the starting point and rarely missed by as much as 0.01 in.

3. The prover scales were set on zero at the start of a test to within less than 0.001 cu. ft., and the final reading was made to within 0.01 cu. ft.—usually less than this.

4. In reporting meter proofs there appeared to be a tendency to give the "benefit of the doubt" on the slow side in border-line cases.

The complete account of this study will be incorporated in the 1938 report of the Subcommittee on Meters and Metering, Distribution Committee, Technical Section of the American Gas Association.

■ ■

Personnel Changes Made By Southern California Co.

IN poor health since he underwent a major operation last year, J. F. Murray, manager of Southern California Gas Co.'s southern division, headquarters at Compton, Calif., is retiring from active service, it was announced in November. His place will be taken by G. W. Carbee, now purchasing agent.

Mr. Murray is one of the oldest members in point of service in the Southern California Gas Co. organization, having completed his 28th year with the company last January. During all but seven years of this time he has been in his present position. A native of St. Louis, Missouri, he worked for the Laclede Gas Light Co. of that city for many years before coming to California in 1909.

Mr. Carbee joined the Southern California Gas Co. in 1919, serving in the engineering and industrial sales departments of the company. He has also been engaged in private engineering practice, recently being retained by the Caribbean Petroleum Co. to design a complete gas distribution system for the community of Maracaibo, Venezuela.

Other personnel changes incident on Mr. Murray's retirement include the appointment of William Maddock, company storekeeper, to succeed Carbee as purchasing agent; the appointment of George Knox, assistant storekeeper, to succeed Maddock; the appointment of E. A. Bullard, storekeeper at the company's 48th street storeroom to position of assistant storekeeper; and the appointment of C. H. Kirby to Mr. Bullard's post.

■ ■

Gas Approval Requirements Become Effective Jan. 1

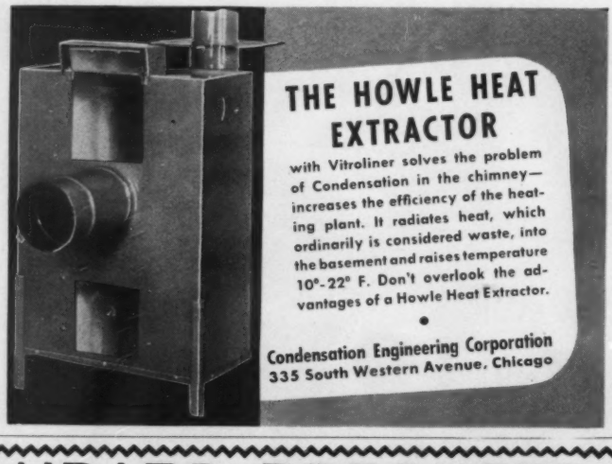
Approval requirements for gas water heaters and central heating appliances, and listing requirements for flexible gas tubing and for attachable water heating units without water-carrying parts, which were given final approval by the American Standards Association Sectional Committee, Project Z21, A.G.A. Approval Requirements Committee at the July meeting, are to become effective January 1, 1939.

Copies of the four revised standards may be secured from the American Gas Association Testing Laboratories, Cleveland, Ohio.

■ ■

Grover C. Reed Passes

Grover C. Reed, 54, telephone superintendent for Lone Star Gas Co., Dallas, Texas, died November 1 at Fort Worth as a result of injuries received in an automobile accident. Mr. Reed had been with the company since it was organized in 1909, and served as a director of the Petroleum Industry Electrical Association in 1934.


THE HOWLE HEAT EXTRACTOR
with Vitroliner solves the problem of Condensation in the chimney—increases the efficiency of the heating plant. It radiates heat, which ordinarily is considered waste, into the basement and raises temperature 10°-22° F. Don't overlook the advantages of a Howle Heat Extractor.
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Made from finest Quality Metals, carefully machined to exacting specifications. Each thoroughly tested, before leaving the factory, for ease of operation and freedom from leakage.

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A PAYNE UNIT FOR EVERY PURPOSE.... EVERY CLIMATE...EVERY BUDGET

Carry the *Payne line complete* and you'll never lose a sale. Because there isn't a single heating requirement that Payne master units can't meet—*perfectly.*

From 35 degrees below zero at Casper, Wyoming—to the desert climate of Palm Springs, California, the Payne line is proving its amazing versatility.

Handling the *complete* Payne line simplifies your sales and purchasing problems—puts you in an invulnerable competitive position. You have the *best of everything* in gas-fired heating appliances.

A quarter of a century devoted *exclusively* to the manufacture of *gas-fired* furnaces—a Research Laboratory dedicated to the constant improvement of gas heat—precision construction in the country's foremost furnace plant—these are the fundamental factors underlying the demand for the entire Payneheat line. Sell *every* unit.

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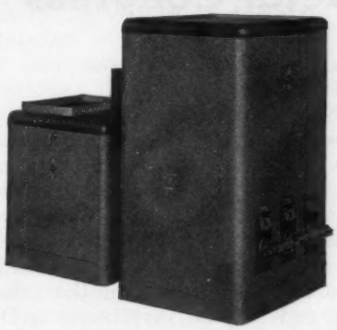
PAYNE BEVERLYAIR UNIT

Heats, cleans and circulates the air — and automatically humidifies. Instant, filtered warmth when and where it is desired. Year 'round refreshing circulation. Sapphire blue krinkle finish and modern design make the Payne Beverlyair a fitting addition to any basement room.

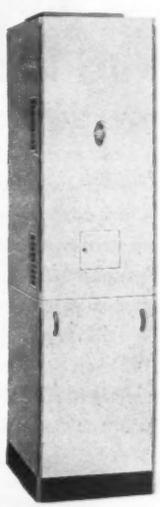
Unit (Zoned) Heat



PAYNE MODEL 'A' (UNIT) FURNACE AND MODERNAIR BLOWER

Automatically controlled zone heating for individual rooms or suites. In combination with the Modernair Blower attachment, the Model "A" provides filtered, forced air heating in winter—cooling ventilation in summer.

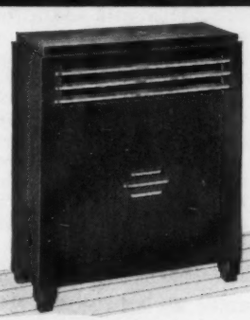
Forced Air Heat



PAYNE F. A. U.

Heats in winter — ventilates in summer. Occupies only four square feet of floor space. Harmonizing desert tan cabinet houses filter and blower units. Requires no basement — operates from kitchen or service porch.

CIRCULATING HEAT



PAYNE CONSOLE HEATER

A tremendously popular warm air circulator. Styled in harmony with modern architectural design. Choice of six sizes in Satin Black, Eggshell White, Walnut, Monterey or Ivory.

PAYNE FLOOR FURNACE

The most efficient and economical floor furnace ever built. Fully vented, it provides an abundance of fresh, pure circulating warmth at low installation cost and low operating cost. Requires no basement.

Not illustrated are other Payne furnaces: Duplex-Registers, Single-Registers, Triplex-Registers, Suspended Furnaces and Commercial Blower Units, all A.G.A. approved.

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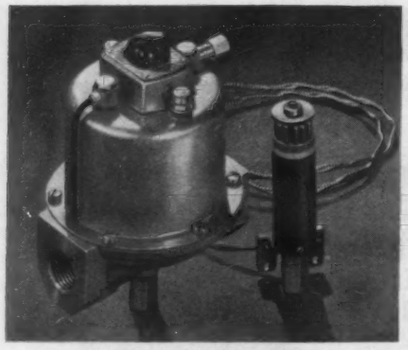

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GAS ACTUATED SPACE-HEATER CONTROL

No Electricity Used

Type B-60-4. Nothing else like it. A self-operated, close differential, automatic pilot burner, gas-actuated control—with all the inherent advantages of electric control. Economical, too. Its efficient pilot burner generator supplies the current for positive valve operation. No other source of current is necessary. Integral thermostat; assures desired room temperature. Ask for Catalog.

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Other offices in Cleveland, Detroit, Houston, San Francisco and Glendale, California

View of the cooperative gas exhibit staged by manufacturers, utilities, and the A. G. A. at the National Metal Congress held in Detroit during October. Focal point of the exhibit was the A. G. A. pillar topped with an incandescent representation of a gas flame.

Gas Utilities, Manufacturers and A.G.A. Stage Exhibit at Metal Congress

THIRTEEN manufacturers and 14 midwestern gas companies cooperated with the industrial gas section, A.G.A., to stage an impressive gas exhibit at the National Metal Congress and Exposition in Detroit, October 17-21. The gas exhibit occupied 5000 sq. ft. of display floor area.

The central element was the A.G.A. pillar, topped with an incandescent representation of a gas flame and emblazoned with the names of the cooperating exhibitors, as well as the gas utilities who made the combined gas exhibit possible. Around its base lay the A. G. A. lounge, manned by industrial field men of the Michigan Consolidated Gas Co. Here were displayed some 389 articles manufactured in the Detroit area with the aid of gas heat. Grouped about the A. G. A. pillar and lounge were the individual booths and equipment of the 13 exhibiting manufacturers.

To draw together for united effort the personnel of the exhibiting firms, the visiting industrial gas company men, and representatives of the metal trade press, the A. G. A. Industrial Gas Section held its yearly breakfast on October 19 in the English Room of Webster Hall Hotel, Detroit. Frank H. Trembly, Jr., chairman of the Industrial Gas Section, presided.

In the gas exhibit a four cylinder automatic gas engine was displayed, powered by natural gas and driving a 7½-kw. electric generator. It was the first time at a national metal show that gas engine power had been shown.

Nearly all the gas equipment was shown in operation. The exhibit was one of four organized and conducted during the year by the Industrial Gas Section's Committee on Displays at National Industrial Expositions. C. Foster Clark, Michigan Consolidated Gas Co., is chairman of the Committee, and Eugene D. Milener is Director of Exhibits.

■ ■

Natural Gas Replaces Coal In Two Oklahoma Schools

Natural gas has replaced coal as fuel for the two public school buildings of Carnegie, Okla. This will add a load of about three million cu. ft. per school year to the distribution system of the State Fuel Supply Co., at Carnegie.

The gas will heat boilers previously used as a part of the steam heating system fueled by coal. The only new equipment required for the gas service was gas burners for heating the boilers and about 30 additional gas steam radiators. The new gas service started November 10.

The State Fuel Supply Co. furnishes natural gas transmission and distribution service to about 20 Oklahoma towns.

■ ■

Cotton Gin Uses Natural Gas

Price's Gin, at Yukon, Okla., has installed four automobile engines powered by natural gas from lines of the Oklahoma Natural Gas Co. The cotton gin previously used electricity for power. The engines were converted to natural gas from gasoline.

A Private Weather Bureau Guides Natural Gas Service

(Continued from Page 15)

to the north it is improbable that it will show much inclination to drift southward very frequently to circulate warm, moist air currents from the deep tropics northward through the Mississippi and Ohio Valleys and the eastern part of the United States. Therefore, we can conclude that the precipitation will be well below normal in all of the country from the Mississippi Valley eastward. Since the cold waves from Canada will likely occur less frequently than in a normal year, we can further conclude that the average temperatures over most of the country east of the Rocky Mountains will be above normal during the month of November. This will be particularly noticeable in the states of Nebraska and Iowa and in the lower Great Lakes region.

"Due to the northward shift of the Pacific center of action, the storms which normally pass into the United States in the vicinity of the state of Washington will move into the interior of Alaska and British Columbia instead. Their influence in Washington and Oregon will be a good deal less than in a normal year, and therefore a noticeable decrease in the precipitation for the month of November, as compared to the normal, will result in these states. In fact this will be true in most all of the western states as they all obtain their most significant precipitations at this time of year from the storms sweeping in from the Pacific Ocean. Although the cold waves from Canada seem to be moving southward into the United States, following a course several hundred miles west of the normal one so that in individual outflows of this air rather low temperatures for the season will be experienced, although the average temperatures over the western part of the country will not show an appreciable departure from the normal during November because the cold currents will not occur as frequently as usual."

■ ■

R. K. Osborn Heads Oklahoma Gas Accountants Association

Ray K. Osborn, of the State Fuel Supply Co., Oklahoma City, was elected chairman of the State Association of Natural Gas Accountants at a statewide meeting at Tulsa, Nov. 19.

The organization was formed about a year ago and has divisions in Oklahoma City and Tulsa. Another meeting is scheduled to be held in January.

Other officers elected at the Tulsa meeting include: H. L. Hayden, Alva, vice chairman; Wendell Thomas, Ada, secretary-treasurer; newly elected board of directors, Ray K. Osborn, M. S. Crossley, Oklahoma City; H. L. Hayden, Alva; Wendell Thomas, Ada; J. L. Miller, Bristow; H. O. Buoen, Tulsa, and Oakah L. Jones, Tulsa.

■ ■

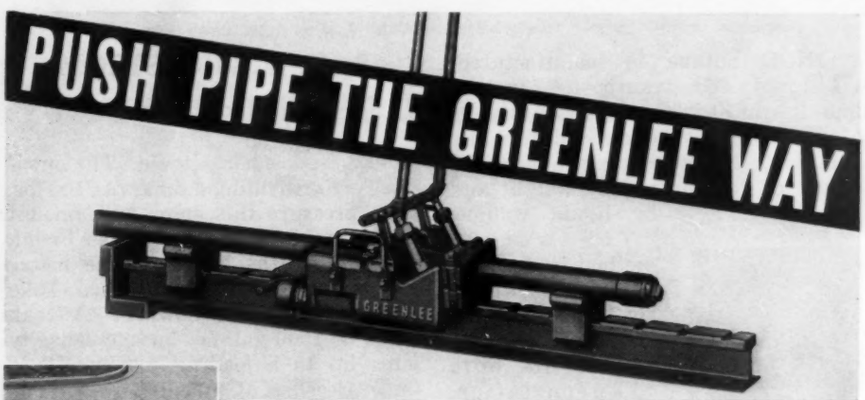
Laboratories' Annual Report Issued By A. G. A.

The 13th Annual Report of the A.G.A. Testing Laboratories Managing Committee presented at the Association's 20th Annual Convention has been published in booklet form. N. T. Sellman of New York is chairman of the committee.

A.G.A. Issues Natural Gas Safety Bulletin

A new safety bulletin, "Inspection of Natural Gas Properties," has been issued by the Accident Prevention Committee of the A.G.A., H. H. Berman, Consolidated Gas, Electric Light and Power Co. of Baltimore, chairman. The report is published as Interim Bulletin No. 8, and covers outlines for inspection of drilling rigs and equipment, gas production equipment and properties, compressor stations, gasoline plants and main transmission and distribution lines.

A. W. Breeland, Lone Star Gas Co., Dallas, is chairman of the subcommittee which prepared the bulletin. Copies are available from the Association's headquarters at 420 Lexington Ave., N. Y.



Above is the Greenlee Hydraulic Pusher set up for pushing pipe under a paved street. One man, standing in a comfortable position, can exert a pressure of 40,000 pounds on the pipe clamp.

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If you are using a pipe pusher that requires several men to operate it, you can save considerable time and money by putting a Greenlee Hydraulic Pusher in service. And if you are making underground installations by trenching, you can save still more. No longer is it necessary to tear up lawns and pavement or to do extensive trenching, back-filling, etc.

With the Greenlee it is only necessary to make a trench long enough to accommodate the pusher with a section of pipe, and one man can send it where it is wanted, simply by pumping the handles. Eight speeds are provided for varying soil conditions, and a push of from 4 to 7 feet can be made, depending on the length of base used, without changing the pipe clamp.

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By G12-38

BUTANE PROPANE News

Methods Used in the Measurement Of Liquefied Petroleum Gases

By H. W. WICKSTROM

Consulting Engineer*

SINCE butane is manufactured, stored and transported in the liquid form, it is necessary that means of measurement be devised for this handling. The two common methods in use are accounting by weight and by liquid volume.

H. W. WICKSTROM

The weight method is satisfactory for small bottle distribution and is used to some extent in bulk transportation. This method requires the use of scales which precludes the shipment of several deliveries from a single tank and requires a fill dump for accurate measurement.

The manufacturer stores his product in pressure tanks and computes his inventory and disbursements by tank gaging. One method is to use a gas-tight float gage, designed to float on the liquid surface, and held in place by slipping up and down between piano wire guides. A gage tape calibrated in inches is attached to the top of the float and stretched over two pulley wheels at the top of the tank extending down the outside of the tank in a pipe to a look box at convenient height. The tape coils up on a pulley and is held taut by a counter weight. The entire assembly is enclosed in a cast steel box designed for the working pressure of the tank. Typical high and low gages can be taken. For accurate gaging, however, temperature and pressure corrections must be made. The temperature corrections are similar to those used in gasoline measurement.

The pressure correction is necessary to account for the amount of liquid that vaporizes and fills the void left by the lowering liquid. The opposite is true in filling a tank. At 100 lbs. gage pressure this error will amount to approximately three per cent. As a result the liquid butane meter is sometimes unjustly criticized. Take for example the following: A tank truck of 1000-gal. net butane capacity pulls up to a loading meter with a tank pressure of 100 lbs. gage. The operator pumps liquid into his truck till the level reaches the 1000-gal. mark. He reads his meter which shows a delivery of 968 gals. He checks his storage tanks and finds the difference between the high and low gage is 999 gals. Then to make it more interesting the same truck driver comes in the next day with his tank at practically atmospheric pressure. The meter grinds on till it reads 1000 gals. before the tank is full. A check of the storage shows 1032 gals. delivered. Ensuing arguments and attempted explanations are interesting.

This is only one of a number of combinations that can occur and which have left a haze of doubt as to the accuracy of metering. Add the fact that the temperature correction on the liquid is close to one per cent per 10° F. and the extent of the difficulties becomes evident.

To add one more small fly to the ointment, the actual mechanical metering is not as simple as it might be. The commodity is under pressure, is a good solvent and a poor lubricant, and further has the tendency to vaporize with reduction of pressure. To meter the liquid accurately, it is necessary to maintain a pressure on the discharge side of the meter higher than the vapor pressure of the material. This prevents flashing in the meter due to pressure drop with the consequent metering of vapor which of course would throw off the true record. This can be accomplished by placing a differential pressure valve on the outlet side of the meter, one side of the diaphragm being connected to tank pressure and the other side to the discharge line in the meter with the valve spring set to give the desired back pressure. This, however, precludes the use of gravity flow and requires that a pump be used in connection with the meter.

Due to these various complications, mechanical and otherwise, the development of metering equipment that is both safe from a mechanical strength viewpoint and is accurate and dependable has been slow and rather expensive. There are a few outstanding installations that are giving satisfactory service, but these entail considerable investment for the service performed. There are other installations in operation that leave some things to be desired, both from a safety angle and accuracy.

There is a great interest in a dependable and moderately priced metering unit and it is probable that the market needs will be met shortly. Though butane is handled as a liquid and the producers talk of it in terms of gallons, it is normally used as a gas, and as a consequence it must be metered again in the gaseous condition.

It is similar to natural gas in many respects, and the general practices used in gas measurement apply with but a few additional problems. Experience with the use of displacement meters for central plant metering and with consumer consumption metering has brought out several distinct troubles.

Number one problem is leakage.

(Continued on Page 60)

* Presented before the Southern California Meter Association, August 26, 1938.

Proposed Amendments to N.B.F.U. Pamphlet No. 58

THE committee on gas of the National Fire Protection Association met in New York October 27 and 28 to consider a proposal from the Liquefied Petroleum Gas Association to amend the National Board of Fire Underwriters' pamphlet No. 58 which covers the design, installation, and construction of containers and pertinent equipment for the storage and handling of liquefied petroleum gases. The committee also discussed the rules of the National Board of Fire Underwriters governing the uses of liquefied petroleum gases when used as an engine fuel.

The committee on regulations of the L.P.G.A. with other members of the industry spent two days during the midwestern section meeting in Chicago in September formulating this proposal.

Members of the committee on regulations of the L.P.G.A. who were present were Carl E. Golden, Standard Oil Co. of California; W. F. Verkamp, Verkamp Corp.; B. B. Stroud, Atlantic States Gas Co.; H. K. Strickler, Protane Corp.; F. R. Fetherston, L.P.G.A.; R. W. Thomas, Phillips Petroleum Co.; L. J. White, Southern Steel Co.; M. G. Farrar, Carbide and Carbon Chemical Co.; Herman Merker, Pressed Steel Tank Co.; K. R. D. Wolfe, Fisher-Governor Co.; E. L. Mills, Bastian-Blessing Co.; J. Woodward Martin, Lone Star Gas Co.; K. C. Waldo, Cumberland Gasoline Co.; W. H. Hoagland, Shell Petroleum Corp.; and Dr. A. E. MacGee, Skelly Oil Co.

It is anticipated that action on the L.P.G.A. proposal will be taken in the near future by the National Fire Protection Association, and that the National Board of Fire Underwriters will adopt the N.F.P.A. amendments as embodied in the L.P.G.A. proposal.

■ ■

Corrosion and Protection Treatise Offered by A.G.A.

The American Gas Association has announced the publication of "Soil Corrosion and Pipe Protection," 277-page, leather bound treatise by Dr. Scott Ewing. The book is divided into 10 chapters dealing with the corrosion of pipe lines and distribution systems, corrosion survey methods, application, inspection, and relative performance of pipe coatings, cathodic protection and electrolysis.

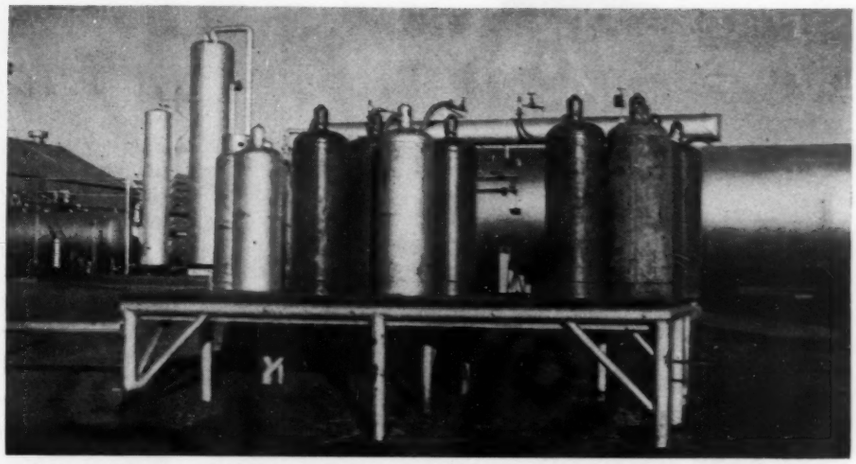
Copies of the new book may be obtained from the American Gas Association, 420 Lexington Ave., New York, at the following prices: one copy, $2.50; 25 copies, $2.25 each; 50 copies, $2.00 each; 100 copies or over, $1.50 each.

■ ■

Northwestern Natural Builds Butane Plant in Sunnyside

The Northwestern Natural Gas Co., Grandview, Wash., has erected several large tanks for the butane plant being installed in Sunnyside, according to Earl Tinius, manager of the company. The plant has been installed as an auxiliary source of gas in cold weather.

The Northwestern Co. has recently moved its offices in Grandview from the Kinkaid Building to the Eccleston Building on Second St.

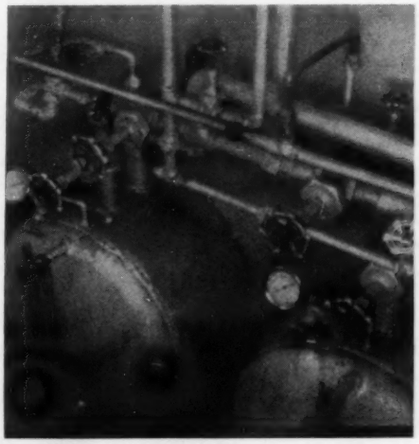


Propane drum loading rack of Warren Petroleum Co. at Galva, Kansas.

How Warren Petroleum Stores and Loads Its Propane

SITUATED in a territory which provides a lucrative market for liquefied petroleum products, Warren Petroleum Co. has built into its gasoline plant at Galva, Kan., equipment for manufacturing, storing and shipping propane. The product is manufactured from the natural gasoline stabilizer overhead stream, fractionated to separate butane and processed in an additional column to remove ethane and lower boiling fractions.

After the propane is dried to remove minute particles of water vapor, it is pumped to storage vessels, which are laid under the surface of the plant yard. The storage tanks are each 140 ft. in length, welded throughout, with the working end enclosed in a concrete cellar, over which a sheet steel house is built. The two vessels are identical in size and have the same type of connections. Gage glasses are used to indicate the amount of liquid in the tanks at the time of observation. Filling lines are connected to the shells of these vessels by welding pipe nipples to the metal of the tanks, and flow is controlled by bronze gate valves with ground joint bonnets.



Operating end of underground propane storage tanks in Galva Gasoline Plant of Warren Petroleum Co., Galva, Kan.

The drum filling establishment is located at some distance from the gasoline plant proper, as a safety measure, so that trucks may be driven to this point for loading filled vessels and returning empty ones without interfering with the routine operation of the recovery system. The filling rack is all metal, made with pipe so the platform is at the normal height of a truck body to eliminate lifting and excessive handling of heavy drums. Piping is run from the underground storage system to the drum loading rack with operating valves at the rack, but the flow controlled from the cellar where block valves prevent unauthorized loading.

■ ■

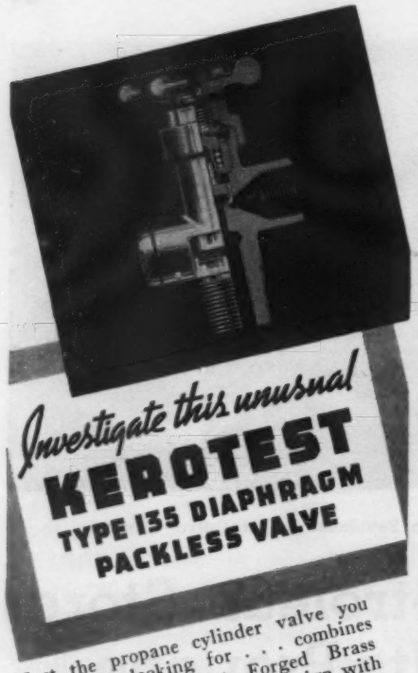
Manney Appointed Manager Gas Service Co., Ft. Scott

Charles H. Manney assumed his new duties as manager of The Gas Service Company at Fort Scott, Kan., Nov. 11, according to an announcement made by B. C. Adams, vice president and general manager of the company. Mr. Manney had been manager of the company's Pawhuska property since 1933.

■ ■

Largest Well in New Field

The largest well drilled in the new Proctor gas field in West Virginia was recently brought in by McIntyre Bros. of New Martinsville, W. Va. Production is estimated at 2,000,000 cu. ft. per day.



Just the propane cylinder valve you have been looking for . . . combines the famous Kerotest Forged Brass Diaphragm Packless valve design with a spring safety device which automatically relieves *only* the excess pressure that may build up in a propane cylinder. Furnished with or without operating handwheel. Listed as standard by Underwriter's Laboratories.

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L. P. G. A. Western Section to Discuss Proposed N. F. P. A. Pamphlet Revisions

THE Pacific Coast Section of the Liquefied Petroleum Gas Association will hold a meeting December 15 at the Mayfair Hotel in Los Angeles, Calif., according to a bulletin issued by F. R. Fetherston, secretary of the association.

In the absence of Gilbert Woodill, Ensign Carburetor Co., chairman of the Western Section, the meetings will be conducted by the Section's secretary, L. C. Roney of L. C. Roney, Inc. Purpose of the meeting is to review the proposed revisions of the National Fire Protection Association pamphlets covering (1) the design, installation, and construction of containers for the storage and handling of liquefied petroleum gases and (2) the use of these gases as engine fuels. Recommendations by the Pacific Coast Section in regard to revising these pamphlets will be made to the Association before January 1, 1939.

Two committees have been formed by the Western Section to make recommendations for the revision of these regulations before the December 15 meeting. Appointed by Mr. Woodill to form a committee in the northern part of California were A. C. Maynard, Shell Oil Co. and J. B. Hill, Tidewater Associated Oil Co. Members of the Southern California committee are Turner C. Smith, General Petroleum Corp., chairman; Frank S. Burt, General Petroleum Corp.; F. E. Wood, Day and Night Water Heater Co.; R. K. Lamont, Parkhill-Wade, Inc.; Oliver W. Kilham, American Pipe and Steel Corp.; Frank O. Olmstead, Union Oil Co.; C. E. McCartney, Petrolane, Ltd.; R. R. Wyker, Ensign Carburetor Co.

■ ■

Compressed Gases Used for Motor Fuels in Europe

COMPRESSED under relatively high pressure in steel cylinders, methane, ethane, propane, butane and city gas are being used in European countries as motor fuels. About 26,000 motor vehicles using one of these fuels are said to be in current use.

Compressed methane motor filling stations supply the gas at pressure between 4500 and 3000 lbs. per sq. in. A cylinder weighing 155 lbs. is said to hold about 25 lbs. of methane at 3000 lbs. pressure, which is equivalent to 4.6 gals. of gasoline. It has been estimated that in Germany over 150,000 tons of gasoline during 1938 will have been replaced by compressed gases for motor fuel purposes.

The cost of city gas, methane, and propane-butane in Germany, compared on a gallon of gasoline basis, is said to be 43c, 41c, and 61c respectively. The tax alone on a U. S. gallon of gasoline shipped into Germany is 36c, and in Italy 51c. Both German and Italian governments have reduced taxes on motor vehicles using compressed gases.

■ ■

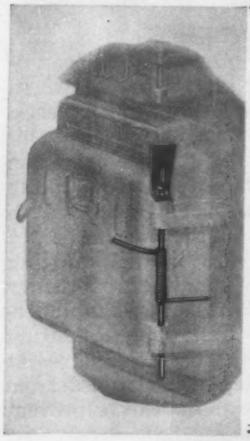
Reliance Regulator Issues Butane Equipment Bulletin

Reliance Regulator Corp., Alhambra, Calif., in cooperation with American Meter Co., has issued a new bulletin entitled "Instructions for Ordering Regulators and Liquefied Petroleum Gas Meters." The bulletin deals with the types of applications, working conditions and specifications for the appropriate types and sizes of meters and regulators. Copies are obtainable from Reliance Regulator Corp., Alhambra, Calif:, or from any of the American Meter Co. offices.

■ ■

Kentucky Co. Buys Line

Western Kentucky Gas Co., Owensboro, Ky., has purchased a 12,657 ft. pipe line in the Birk City field in Henderson County from J. C. Ellis. The line runs to a well on K. A. Jones' property.



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Open furnace doors rob conversion burners of efficiency, cause customer complaints. This Inland Door Closer keeps furnace door firmly and securely shut. When the door is blown open, this device automatically and unfailingly closes it again. No conversion burner 100% efficient without this protection. Strongly made, cadmium plated, provided with wedge to hold door open when desired. Write for bulletin describing in detail this and other money-saving Inland Gas Specialties.

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Butane-Propane Handbook Revised by Publishers

WESTERN Business Papers, Inc., publishers of *GAS* and *OIL & GAS Equipment Review*, issued in November, 1938, the second printing of The Handbook Butane-Propane Gases, second edition. This new volume is a revision and enlargement of the second edition published in 1935, and contains three new chapters, as well as a more complete and up-to-date Directory of Central Plants and a review of the industry's history during the past 13 years.

This 415-page volume now contains 19 chapters on various phases of liquefied petroleum gas usage as well as the 1937 Regulations for Liquefied Petroleum Gases as stated in N.B.F.U. Pamphlets Nos. 52 and 58.

The first of the new chapters, contributed by R. B. Childs, assistant general manager of the Spokane United Railways, Spokane, Wash., is a description of the operation of a metropolitan bus system on butane fuel. The second new chapter is a description of a combination central plant capable of supplying a complete utility service. This chapter was contributed by W. Z. Friend and G. L. Brennan of the Philgas Department of Phillips Petroleum Co. Semi-bulk distribution is the subject of the third new chapter, contributed by Harold W. Wickstrom, consulting engineer, Los Angeles.

Copies of the revised second edition of the Handbook are available at Western Business Papers, Inc., 810 South Spring St., Los Angeles, at $5.00 per copy.

■ ■

Study of Specific-Gravity Instruments for Gases

At the request of and in cooperation with Committee D-3 of the American Society for Testing Materials, the Standards, Washington, D. C., has undertaken a study of the instruments available to the gas industry for determining, indicating, or recording the specific gravity of fuel gases. The tests will include determinations of accuracy, reproducibility, sensitivity, and various other operating characteristics.

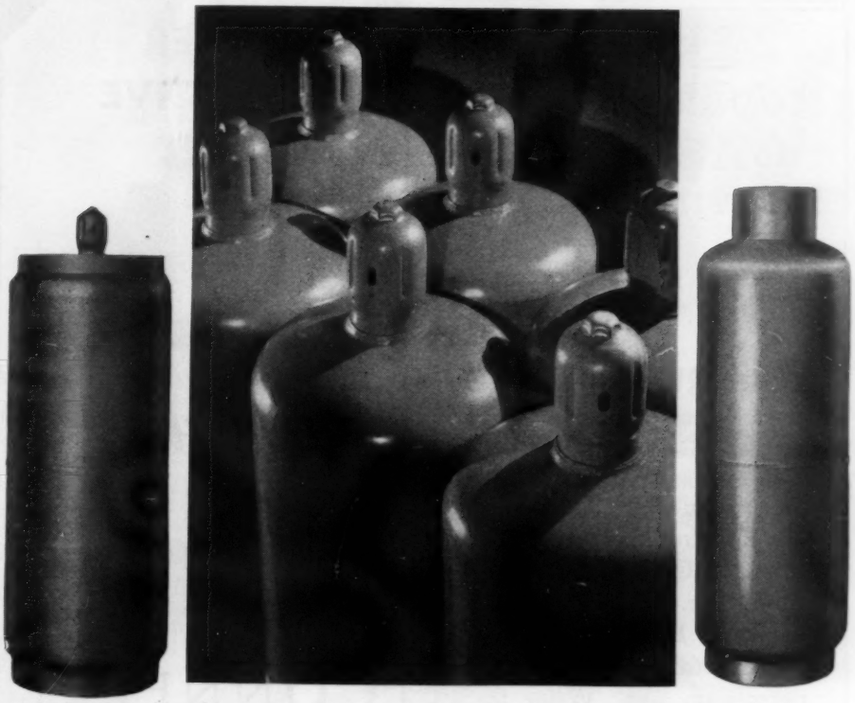
Approximately a dozen instruments of different types have already been received at the Bureau from a number of cooperating manufacturers, and the tests are expected to start shortly after December 1, 1938. The committee is anxious to obtain full representation of all manufacturers, but no additions to the list of instruments will be considered after the tests are under way.

■ ■

Colorado Liquefied Gas Co. Moves to New Location

The Mills Gas Co., distributors of liquefied petroleum gas and industrial gas appliances, held an open house October 4 in their new quarters at 197 Manitou Ave., Manitou Springs, Colo. The new offices in the El Parque Hotel building provide more complete facilities and space than those at the old location, 225 Manitou Ave.

Much attention has been given recently by the company to the study of serving gas at high altitudes, particularly the summit of Pikes Peak.



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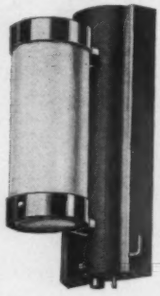

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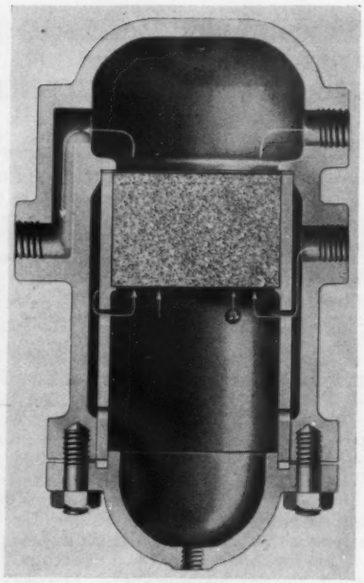


Fisher Governor Designs New Gas Line Filter

New filters, designed for gas and air lines, have been developed by the Fisher Governor Co., Marshalltown, Iowa. These new Fisher Types 360 and 361 filters remove foreign matter and separate free moisture from the air and gas pipe lines with a minimum friction loss, protecting air tools, machines, instruments and other devices.

Fisher filters utilize hard aluminum oxide crystals bonded together as a filter element which is both acid and heat resisting. The filters may be installed in either vertical or horizontal pipe lines with standard pipe fittings. Their design separates free moisture before gases pass through the element. This reduces the load, and results in longer service life and less frequent cleaning. Suitable drain cocks are furnished. Flanged and bolted bottom castings permit easy, quick removal for cleaning.

The filter body is constructed of high-tensile iron, designed to give full capacity. These filters with screwed connections are available in sizes ¼ in. to 1¼ in. inclusive, and with flanged connections from 1½ in. to 2 in.

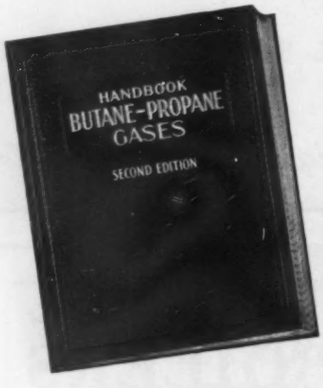
Complete information about these filters is contained in Fisher Catalog I.

Gas Conservation Program Under Way in Wyoming

An order of the Petroleum and Natural Gas Conservation Board of Wyoming went into effect recently, prorating approximately 100 gas wells to balance market requirements and halt the wastage of some 200 million cu. ft. of gas daily, as part of a gas conservation program in Turner Valley, Wyoming.

Hoping to formulate a plan for gas repressuring in Turner Valley, representatives of the Alberta Petroleum Association have been conferring at Calgary with engineers of American oil field equipment houses. J. W. Chadwick of the National Supply Co., Casper, Wyo., and J. B. O'Connor of Clark Brothers Co., New York, have been sent to represent their companies.

HANDBOOK
BUTANE-PROPANE
GASES



415 Pages

CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design & Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricity, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with other Gases: Analysis & Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalog Section.

SECOND EDITION (Revised November, 1938) **$5.00** *Plus Postage*

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GAS
The NATIONAL Gas Magazine

OIL & GAS Equipment Review, 810 S. SPRING ST., Los Angeles, Calif.

Animated Refrigerators To Be Shown at San Francisco Fair

"ANIMATED" Servel Electrolux refrigerators will demonstrate the advantages of gas refrigeration in the co-operative gas industry exhibit of the Pacific Coast Gas Association at the forthcoming Golden Gate International Exposition to be held in San Francisco in 1939. Ranges and other gas appliances in the revolving kitchens will also be "animated" in the same manner.

An "animated" refrigerator has doors that open and shut, ice cube trays that move backwards and forward, and the vegetable fresheners and other conveniences are activated in order to give the visitor an impression that an invisible person is demonstrating the uses of the refrigerator.

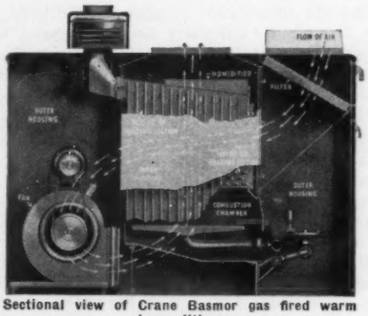
The refrigerators will form part of the up-to-date gas equipment in a series of model kitchens which will be shown on a 35-ft. revolving stage.

A sound track operated simultaneously with the "animation" device will carry the voice of the unseen demonstrator, the talk to be on all the uses of gas in the modern kitchen.

■ ■

Crane Announces Gas-Fired Warm Air Conditioner

A new gas-fired warm air conditioner which heats, circulates, humidifies and filters air under a system of self insulation is announced by Crane Co., Chicago. Intake air sweeps through an outer housing of the conditioner, enveloping the



Sectional view of Crane Basmor gas fired warm air conditioner

inner, or heating, compartment, picking up what has, heretofore, been regarded as "lost" heat. Further economies are claimed for the air conditioner in an arrangement of fins causing what is called "staggered heat travel."

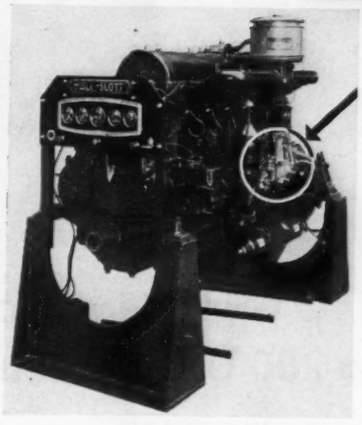
Five different sizes of air conditioner are available—from two to six sections. Each section has its own burner which is controlled in unison with the burners in other sections by a master control system.

■ ■

Brackett, Woodall Receive Pittsburg Water Heater Posts

The Pittsburg Water Heater Corp., Pittsburgh, Pa., has appointed J. N. Brackett to represent the company in the New England states, and J. E. Woodall to represent Pittsburg Co. in Wisconsin, Minnesota, North and South Dakota, Iowa and Nebraska, according to a recent announcement made by R. C. Hill, general sales manager.

LEADING ENGINE BUILDERS CHOOSE ENSIGN

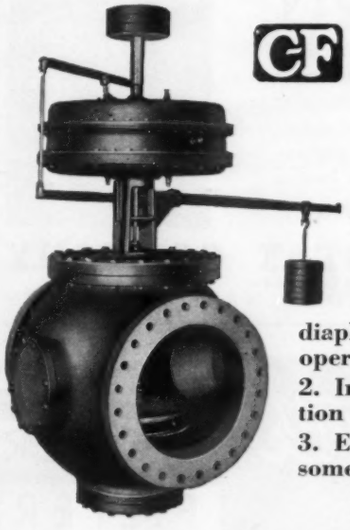


TWENTY-SEVEN years of experience are back of every ENSIGN Carburetor built today. Way back in 1911, ENSIGN blazed the trail which led to more efficient carburetion for internal combustion engines. Always the leader, ENSIGN equipment is now, more than ever, the answer to dependable and economical carburetion.

HALL-SCOTT general utility power unit with ENSIGN Natural Gas Carburetor. ENSIGN Butane, Natural Gas, and Combination Gas and Gasoline Carburetors are standard equipment on HALL-SCOTT engines.

ENSIGN CARBURETOR CO., LTD.
LOS ANGELES · DALLAS · CHICAGO

A PRODUCT OF FORTY YEARS' EXPERIENCE — —



GF Fulton Duplex Sensitive Gas Governor Provides:-

1. Extremely accurate control of either natural or manufactured gas. Reduction of frictional surfaces, and extraordinary enlargement of diaphragm area give assured delicacy of operation.
2. Immunity of regulator to chemical action of manufactured gases.
3. Easy, quick installation. No troublesome accessories.

Write for Bulletin 1142, which gives complete description.

THE CHAPLIN-FULTON MFG. COMPANY
28-40 Penn Avenue Pittsburgh, Pa.

REPRESENTATIVES

WESTCOTT & GREIS, Inc.
Sales and Service
Dallas — Tulsa

JNO. W. CRAWFORD
Sales Engineer
1855 Industrial Street, Los Angeles

PARSONS ENGINEERING CO.
Los Angeles, Calif. San Francisco, Calif.

OR ANY JOBBER

FRASER
GAS HEATING EQUIPMENT
Sell SUMMER WARMTH
THIS WINTER
with
FRASER
TUCK-A-WAY

Also

- CABINET FURNACES
- BASEMENT FURNACES
- FLOOR AND WALL FURNACES
- CIRCULATING HEATERS
- FURNACE FANS AND FILTERS

IT PAYS YOU TO SELL AND INSTALL THIS SUPERIOR EQUIPMENT.

MANUFACTURED BY
FRASER FURNACE CO.
STOCKTON, CALIFORNIA
DISTRIBUTORS
H. R. BASFORD COMPANY
425 Second St. San Francisco
911 S. Grand Ave. Los Angeles

At the Speakers' Table, B. H. Wittman, Ray Fenton, B. A. Johnson and L. W. Johnson, Peoples Gas Light and Coke Co.; A. F. Wedderspoon and H. L. Cole, Cole Hot Blast Mfg. Co.; E. O. Howle, The Howle Co.; M. L. Kane, Union Gas Co. of Canada; H. D. Valentine and R. B. Munroe, Peoples Gas Light and Coke Co.

New Gas fired Heating Unit Introduced To 200 Utility Men at Chicago Banquet

APPROXIMATELY 200 gas men and dealers of the Metropolitan Chicago area, on November 16, witnessed the unveiling of a new line of gas fired heaters that will be sold to utility companies by The Howle Co., Chicago, and to dealers by Cole Hot Blast Manufacturing Co., also of Chicago. The heater is manufactured by Cole Hot Blast Manufacturing Co. under the patents of E. O. Howle, president, Condensation Engineering Co.

A banquet was given the men at the Medinah Club of Chicago in honor of the occasion. H. L. Cole, president of Cole Hot Blast Mfg. Co., welcomed the guests. A. F. Wedderspoon, vice president, spoke on "Oil Heaters versus Gas Heaters." H. D. Valentine, B. H. Wittman, R. B. Munroe, B. A. Johnson and Ray Fenton, all of The Peoples Gas Light & Coke Co., spoke respectively on "Gas As a Fuel"; "The Cooperative Dealer Plan Offered by the Gas Company to Chicago Dealers"; "Engineering and Heater Service"; "Laboratory Findings in Connection with the New Heater"; and the "Gas Company's Advertising Program."

E. O. Howle dealt with the patented features of the heater and M. L. Kane, assistant to the president, Union Gas Co. of Canada, gave a testimonial regarding the successful operation of the heater on the line of his company. L. W. Johnson, sales manager of The Peoples Gas Light & Coke Co., was also called on to speak. After a sales presentation by A. F. Wedderspoon a stag entertainment was given.

■ ■

Western Gas Division of Koppers Co. Absorbed

Koppers Co.'s Western Gas Division, Fort Wayne, Ind., has been absorbed by its Bartlett Hayward division, Baltimore, it was announced by Walter F. Perkins, vice president of Koppers Co. Sales and engineering activities at Fort Wayne will be moved on Dec. 1, to Baltimore, where they will be consolidated with the Bartlett Hayward organization.

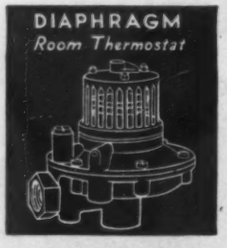
All products will be sold, engineered and manufactured under Mr. Perkins' direction.

■ ■

Ada, Okla., Votes Franchise

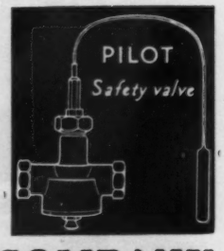
The city of Ada, Okla., will be served natural gas by the Southwest Natural Gas Co. under a 25-year franchise, which has recently been voted. The utility will pay the city two percent gross receipts tax under terms of the franchise.

BUILD YOUR HOUSEHEATING LOAD WITH KLIXON CONTROLS



These two advanced Klixon devices give exact automatic temperature control and assure positive pilot protection for your gas-fired space heaters . . . provide sales features that make it easy to sell gas heating.

Write today for descriptive bulletins.



SPENCER THERMOSTAT COMPANY
Unit of Metals & Controls Corporation
812 FOREST STREET • ATTLEBORO, MASSACHUSETTS

Electrogas
FOR EVERY HEATING NEED
FURNACES
BLOWERS
FILTERS
WASHERS
Air Conditioning • Heating Equipment
WRITE FOR ATTRACTIVE DEALER PROPOSITION
ELECTROGAS FURNACE CO. 2575 BAYSHORE BLVD. SAN FRANCISCO, CALIF.

1938 P.C.G.A. COOPERATIVE ADVERTISING CALENDAR

P. C. G. A.
Norman R. McKee, President
Clifford Johnstone, Managing Dir.

DECEMBER

COMMITTEE
A. C. Joy (Chairman), P. G. & E.
J. S. Spaulding, So. Calif. Gas Co.

News Service Report

***

PUBLICATIONS

An important division of your Cooperative Load Building Campaign is "Publicity." During the 10-months' period, January through October, your Cooperative News Service obtained actual publication of:

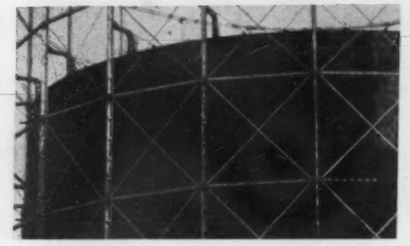
178 articles • 170 illustrations

These "stories" and "cuts," publicizing modern usage of gas and gas appliances, appeared in 30 western publications — domestic, commercial and industrial. A number of these articles were "features" requiring one or more full pages. Many more are scheduled for November and December use.

RADIO

Your News Service also arranged a special Gas broadcast on Columbia Station KSFO —one of a series sponsored by the California State Chamber of Commerce—and collaborated in preparing the script.

DOUBLE PROTECTION AGAINST RUST



1. Mechanical Protection

No-Ox-Id covers metal surfaces with a plastic non-drying coating which effectively excludes all moisture and oxygen.

2. Chemical Protection

No-Ox-Id prevents corrosion under the protective film by neutralizing all corrosive action as soon as it occurs.

FOR gas holders, exposed or buried pipe lines, service pipes, washers, purifiers, and all necessary iron and steel equipment.

DEARBORN CHEMICAL COMPANY

Chicago, Ill.

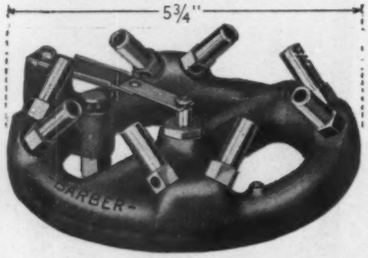
NO-OX-ID IRON RUST
The Original Rust Preventive

Los Angeles: 807 Mateo St. TRinity 3385

San Francisco: 421 Bryant St. SUtter 8688

For BUTANE Gas You Can Rely on

BARBER Appliance BURNERS



No. S. P.-15 Barber Burner with Safety Pilot

Any gas-burning appliance can be equipped with a Barber Burner with special drilled jets to meet the requirements of Butane Gas. Servicing and backfiring are eliminated. There's a proper, reliable Barber unit for every size and type of appliance—and Barber means top efficiency. Write for complete literature, prices and discounts on the Barber line of Conversion Burners, Appliance Burners, Controls and Regulators.

The Barber Gas Burner Co.

3704 Superior Avenue Cleveland, Ohio

A.G.A. Approves Proposed Amendments to Constitution

The Executive Board of the American Gas Association has approved by unanimous vote and the membership has voted approval of amendments to Articles II, III, V, VIII and IX of the Constitution, and to Articles II, III, and VI of the By-Laws as recently proposed.

The effect of these amendments to the Constitution are to particularize the objects as contained in the Certificate of Incorporation, provide additional company member classification, make minor changes in individual membership classification, change Natural Gas Department to Natural Gas Section, and increase the size of the Executive Board.

The effect of the amendments to the By-Laws is to conform them to the Constitution as proposed to be amended.

■ ■

Porcelain Enamel Institute Reelects All Old Officers

F. E. Hodek, Jr., General Porcelain Enameling and Manufacturing Co., Chicago, was reelected president of the Porcelain Enamel Institute, Inc., Chicago, at the annual convention held in Cleveland, Ohio, November 16 and 17. Also reelected were vice presidents H. D. Chase, Chicago Vitreous Enamel Product Co., Cicero, Ill., and R. H. Turk, The Porcelain Enamel and Manufacturing Co., Baltimore. William Hogenson and C. A. Pearce, both of Chicago Vitreous Enamel Product Co., Cicero, were reelected treasurer and secretary respectively. The ninth annual meeting of the group is scheduled to meet in Columbus, Ohio, in October or November, 1939.

■ ■

Tag System for Instruments Inaugurated by Lone Star

The gas measurement department of the Lone Star Gas Co., Dallas, Texas, has effected a new system of identifying its meters, regulators, and recording gages by a new light-weight label which fits into a celluloid envelope, sealed on three sides, and then put into a metal holder made of aluminum which can be fastened on the instrument. The old labels were similar to shipping tags to which were wired metal numbers, and were unsatisfactory after a few months service. The new labels will be placed on all instruments by inspectors on their regular visits, by the end of this year.

■ ■

Kentucky Co. Asks Permission To Build Pipe Line Crossing

The Kentucky Natural Gas Corp., Louisville, Ky., has applied to the war department for permission to construct a four-in. submarine gas pipe line crossing in the Green River near Henderson, Ky.

■ ■

Parkhill-Wade Incorporates

According to an announcement of the board of directors, the firm of Parkhill-Wade, Los Angeles, Calif., consulting and construction engineers, formerly a partnership, has become a corporation as of November 1, 1938. Officers of the corporation are Henry N. Wade, president; C. L. Parkhill, vice president; H. D. Thompson, secretary-treasurer; Ruth Magaw, assistant secretary-treasurer. The board of directors will include Henry N. Wade, C. L. Parkhill and Roy Lacy.

The firm was formed in 1932 and has been identified with the erection of natural gasoline, pressure maintenance, repressuring, butane production, butane standby and gas dehydration plants in California and the mid-continent.

■ ■

Annual Sales Convention Held by Servel, Inc.

"Helping the retail salesman to sell" was the dominant note sounded at the annual sales convention of Servel, Inc., held at the French Lick Springs Hotel from November 3 to November 5. George S. Jones, Jr., vice president and general sales manager, opened the meeting, and President Louis Ruthenburg delivered the keynote address. Other addresses were given by Charles G. Groff, chairman of the board, and William Reynolds, advertising manager.

Discussions pertaining to the various new sales aids furnished by the company to the salesman were conducted by Chairman H. S. Bovle, sales promotion manager. The new 1939 Servel Electrolux models were exhibited, and presentation of medals granted annually for service in the company's sales department was made by F. E. Sellman, vice president.

■ ■

Portland Co. Names Kindley Vancouver, Wash. Manager

Wendell E. Kindley, for the past four years Portland superintendent of sales for the Portland Gas and Coke Co., Portland, Ore., has been appointed as the company's district manager in Vancouver, Wash., according to an announcement by President Paul B. McKee.

Mr. Kindley joined the Portland utility in 1934 as office manager in the commercial department. In that same year he was advanced to the position of sales supervisor, which position he held until his appointment to the Vancouver post.

■ ■

Lanier Co. Named Southwest Amercoat Representatives

Robert E. Lanier and Co., Houston, Texas, have just been appointed southwest sales representatives for Amercoat, a corrosion resisting plastic manufactured by the American Concrete and Steel Pipe Co., of Los Angeles. Miles Smith is manager of the Amercoat Sales Agency in Huntington Park, Calif., and Everard W. Baker will direct Amercoat activities in the southwest.

■ ■

Dallas Gas Co. Shifts Men

Lowell S. Lockhart, Dallas (Texas) Gas Co., recently has been transferred from the accounting to the purchasing department, according to an announcement by Wesley F. Wright, vice president and operating manager. Frank Satterfield has taken over Mr. Lockhart's duties in the accounting department, having been formerly in charge of the company's appliance warehouse.

Preview of coming campaigns by

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

GAS APPLIANCE SOCIETY OF NORTHERN CALIFORNIA

Rural Area Welcomes Natural Gas

Cooperative sales promotion of gas appliances during December will be limited to an area where service is being changed from manufactured gas to natural gas. This area includes the towns of Marysville, Yuba City, Meridian, Live Oak, Colusa, Gridley, Oroville, Durham and Chico. Already dealers in these towns are celebrating the change-over by offering specials on gas equipment, and the P. G. and E. is cooperating with promotional advertising of its own and by paying a share of dealers' newspaper space costs. Any dealer not already participating in this promotion should start immediately. Full information may be obtained from any P. G. and E. office in the territory mentioned.

G 212-1238

DEALERS: By watching this page from month to month you can keep informed of sales promotional campaigns to be sponsored by the Pacific Gas and Electric Company and the Gas Appliance Society. Detailed information will be supplied, as usual, through the mail. If such information is not received, call our local office or write Gas Appliance Society, 1355 Market Street, San Francisco, California.

Measuring Liquefied Gases

(Continued from Page 50)

Butane, by the time it is transported by rail to its point of distribution and freight paid on the basis of gasoline rates, is a valuable product. At seven cents per gallon, and 32 cu. ft. to the gallon, it carries a value of approximately $2.20 per M c.f. A great number of small leaks that would be considered insignificant in handling natural gas become important in handling butane. As the gas is a good solvent with no lubricating value, counter packing becomes a problem. The butane tends to cut the lubricant from the packing causing leaky glands. This trouble has been solved to a great extent by replacing the ordinary packing material with a semi-metallic packing. In order to make this type of packing effective, the counter shafts have to be smoothed without scores and the packing set up tight enough to form around the shaft. The friction involved is so great that the meter is slowed down. The procedure used to overcome this is to pack the meters and then run them in on the line for several days, each day taking up the packing until a tight joint is secured and the friction has been reduced to normal. The meters are then proved and put into service.

The second point of loss is gasket leakage in cast iron meters. The ordinary gas meter will show signs of leakage after the first year's service if ordinary gasket material is used, particularly if the meters are exposed to climatic variations. It is nearly impossible to stop this loss by tightening the flange screws due to the distance between screws. In one system serious loss due to leaky meters was corrected by using cork gaskets, and also by drilling additional holes in the flanges and replacing the flange screws with small bolts. In this way a much greater unit pressure on the gasket face was obtained. The advantage of the bolts over the screws was found to be material especially in field tightening at later dates.

Another difficulty encountered is rapid drying out of meter diaphragms. Various oils have been tried to treat the leather diaphragms, but all seem to have a limited usefulness. Trouble can be expected within three to five years' use. With the increasing number of meters going into this service, the volume will soon become great enough to justify further development work toward solving this problem. Last year one eastern company made 9000 installations, and a mid-western firm has a contemplated expansion program of 10,000 units for 1938. Both of these jobs are more or less experimental projects that may pioneer a huge field for utility type distribution of butane beyond the reach of present gas mains.

Metering in Standby Plants

The third type of metering of butane is in the field of butane standby plants. Butane standby plants are an economical method of providing a reserve supply of gas fuel in case of a temporary outage in the gas distribution systems. The butane standby plant is not competitive with the gas industry, but on the contrary is a useful adjunct. There are many industries that have improved their processing by the use of natural gas for fuel. One of the drawbacks in some of the larger industries is the possibility of a temporary shut-off when the winter peaks or emergencies place a demand on the utilities for domestic service that requires the shut down of the commercial user. Many industries provide oil standby systems which usually require some change in burners and processing methods when the oil fuel is used.

Changeover to equipment that requires gas for a fuel with no alternate substitute has often been declined because of possible shut downs and the fact that the economics of the industry did not justify the purchase of gas at the higher brackets that would eliminate any shut downs except during the worst emergency conditions. A butane standby is a method of storing a sufficient quantity of liquid gas to carry a plant's normal operation for a week or 10 days, and if a shut down were prolonged for an extended period, additional fuel could be hauled in to take care of the fuel needs.

A 1000-cu. ft natural gas holder built for 125 lbs. working pressure will store approximately 9300 cu. ft. of 1100 B.t.u. gas or 10,230,000 B.t.u. The same size container will hold 7480 less 748 or 6732 gals. of butane of 100,000 B.t.u. per gallon or a total of 673,200,000 B.t.u., which is approximately 65 times as much energy for

EXCLUSIVE design of Mueller Gas Era Furnace gives longest life—lowest operating cost.

L. J. MUELLER
FURNACE COMPANY
MILWAUKEE

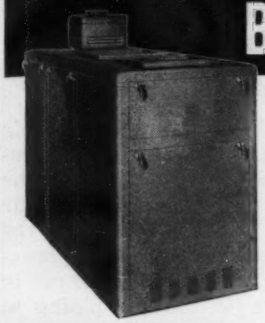
GAS—810 South Spring Street, Los Angeles, California

Yes! SEND ME GAS

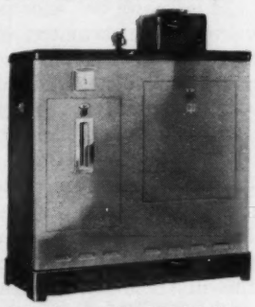
for ☐ 1 Year at $1.00, ☐ 3 Years at $2.00
Other than United States, $2.00 per year

Name..... Position.....
Company.....
Address.....
City..... State.....
☐ Check enclosed ☐ Send bill

If You Want Results – LET CRANE PRESTIGE BACK YOUR LOAD-BUILDING DRIVES



Crane-Basmor Gas-Fired Warm Air Conditioners provide complete winter air conditioning.



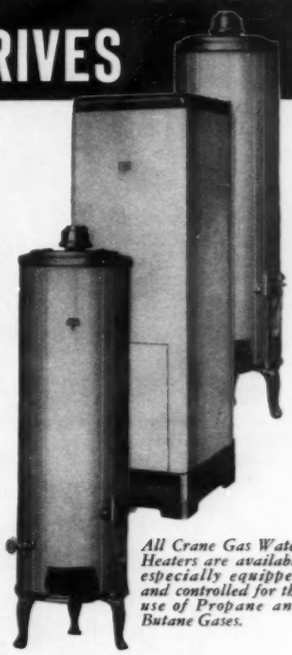
Crane-Basmor Gas-Fired Boilers for steam, hot water, or vapor heating—for large volume water heating.

● To step up buying interest and lower sales resistance in your gas appliance promotions, choose Crane-Quality equipment. Its nation-wide acceptance will pave your way to greater results.

Advanced engineering and the manufacturing advantages of Crane gas equipment, backed by proved performance, permit extraordinary claims of efficient, economical operation. Attractive styling adds important sales appeal. The Crane line of water heaters is complete—with models in every price and capacity range, for domestic and commercial service. Crane gas boilers and gas-fired warm air conditioners meet every heating requirement.

Consider, too, the all-important features of Crane co-operation. Consistent, aggressive and far reaching promotion is directed into every field you serve. Crane distribution places adequate stocks in strategic locations throughout the country—immediately available through plumbing and heating contractors everywhere.

Convincing facts on how Crane prestige, co-operation, and distribution can actively help your load-building drives are available. Communicate with the nearest Crane branch today.



All Crane Gas Water Heaters are available especially equipped and controlled for the use of Propane and Butane Gases.

CRANE

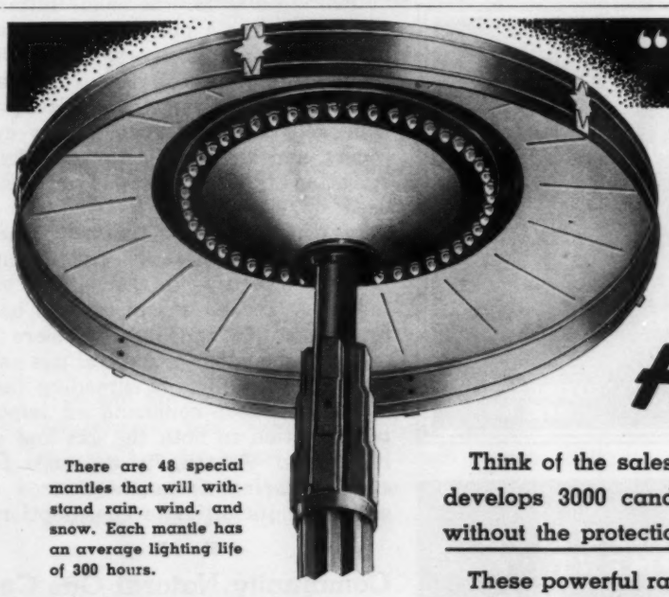
VALVES · FITTINGS · PIPE
PLUMBING · HEATING · PUMPS

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

"DIADEM"

THE NEW Humphrey GAS FLOODLIGHT



There are 48 special mantles that will withstand rain, wind, and snow. Each mantle has an average lighting life of 300 hours.

The DIADEM is a complete contained unit consisting of post, super-charger, and lighting head proper. It burns either natural, manufactured, or liquid petroleum gas with an input rating of 38,500 B.t.u. per hour.

Think of the sales possibilities of a gas lighting unit that develops 3000 candle power of comfortable lighting rays without the protection of a globe!

These powerful rays spread "daylight" over a large area. The distinctive style is as modern and stately as tomorrow's skyscraper. Send today for a folder that gives a complete description of the DIADEM and shows the lighting effect on a typical installation.

GENERAL GAS LIGHT COMPANY

KALAMAZOO, MICHIGAN

23 Warren St., NEW YORK CITY 2nd Unit Santa Fe Bldg., DALLAS 475 Eleventh St., SAN FRANCISCO

In Los Angeles
it's the
HOTEL
CLARK
Fifth and Hill

555
Rooms-Baths

from $2.50 PER DAY

Famous for Good Food from Coast to Coast

RIGHT downtown in the center of things. Easy chairs, sleep-inspiring beds, large rooms with luxurious fittings.

P. G. B. MORRISS
Manager

the same natural gas investment cost. The conversion of this liquid to a usable gas of a B.t.u. value that will perform suitably in burners operating on natural gas is a simple and automatic operation.

The liquid is vaporized in a heat exchanger operating either on a low pressure steam or hot water circuit. Most plants have a self-contained low pressure steam system or hot water system fired with undiluted vapor from the storage tanks for starting and then receiving fuel from the vaporizer for continued operation. The vaporized gas is reduced to a desired line pressure by pressure reducing valves and piped into a meter run. An air compressor, preferably operated by the gas and with a small receiver, compresses air to the desired pressure before it goes into a second meter run through a pressure reducing valve. The two meter runs are piped together at their outlets into a line tied into the down steam side of the gas company regulator.

A differential ratio flow controller actuating a diaphragm valve on the air line holds the air gas ratio to a predetermined setting. As the pressure tends to drop on the line to the point of consumption, the pressure reducing valves on the butane line open, increasing the drop across the orifice in the gas meter run. The instrument in turn opens the diaphragm valve in the air line till the drop across the orifice in the air line reaches the desired ratio.

Switching to Air Mix

To switch from natural gas to air gas mix requires no further operation than gradually shutting off the supply of natural allowing the air gas to take the load. Due to the fact that butane condenses at approximately 32°F., it is necessary to make provision in the gas piping to the instrument to prevent accumulation of drips with a consequent false flow reading. This can be accomplished by housing the instrument in a box and providing heat from the heating circuit to maintain sufficient temperature. Lines from the meter to the orifice plates must have an untrapped fall to prevent pocketing of the liquid. These plants are applicable to utility standby service and several are in operation, one being 100 per cent automatic control, the air mix cutting into the distribution system whenever the distribution pressure drops below a predetermined level.

The time required to get an ordinary unit on the line varies from one or two minutes for the small units to 15 minutes for a plant of one to two million cu. ft. capacity per day. The smaller plants for use in small laundries, bakeries, etc., utilize propane delivered in the customary cylinders, and a diaphragm operated inspirating type of air gas mixer is used.

In conclusion the following facts should be brought out: first, butane is not competitive to the natural gas industry. Second, it can be used both by the utility and its customers to increase the value of natural gas as a fuel. Third, its use is spreading fast, and it will soon command an important position in both the gas and oil industries. Fourth, its use calls for good metering from the source of supply to its ultimate consumption.

■ ■

Community Natural Gas Co. Makes Personnel Changes

H. D. Smith of the Community Natural Gas Co., Sweetwater, Texas, has recently been promoted to the position of manager of the Electra branch of the company, according to an announcement made by George Williams, district manager. Mr. Smith has been with the company eight years.

Charles M. Burke of Waco, for many years associated with the gas company, will succeed Mr. Smith as head of the utility division.

BASO
THERMO ELECTRIC SAFETY CONTROL FOR GAS BURNING APPLIANCES
BOILERS ★ FURNACES ★ CONV. BURNERS ★ SPACE HEATERS ★ UNIT HEATERS ★ AIR CONDITIONERS OVENS ★ RANGES ★ WATER HEATERS, ETC.
MILWAUKEE GAS SPECIALTY CO.
MILWAUKEE ★ WISCONSIN

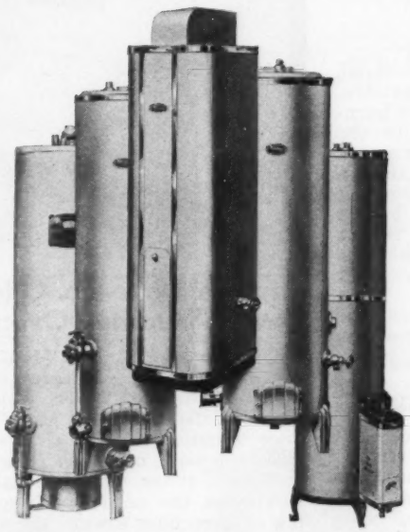
GAS VALVE SERIES 500

ELECTRIC SWITCH SERIES 600

MUELLER GAS DISTRIBUTION EQUIPMENT
The time-tested Mueller line includes Mueller Evenflow Service Regulators, Gas Stops, Service Stops, Stove Stops, Drilling and Tapping Machines, service boxes, meter trims and similar equipment. Write for description and prices.
MUELLER CO., Los Angeles, Calif.
Factories: Decatur, Ill.; Chattanooga, Tenn.; Los Angeles, Calif.; Sarnia, Ont.
Branches: New York and San Francisco

QUICKEN your sales

INCREASE permanent revenue



CAMPAIGN THESE FAMOUS

HOTZONE
Wilsbach

GAS WATER HEATERS

The Christmas Season is an excellent time in which to stage an aggressive campaign for water heater installations. Homes everywhere are putting their best foot forward for company, for visiting relatives, for children vacationing from school.

HOTZONE HEATERS enable you to offer modern hot water service to all homes. There is a type and size to meet every domestic hot water requirement and every pocketbook budget. What's equally important—they result in permanent revenue for you, because of their low operating cost and trouble-free service.

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● The model illustrated is Reynolds' small volume Regulator, unusually compact, unequalled in accuracy, and featuring two-way inlet installation.

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Wm. A. Ehlers, 49 S. Clinton St., E. Orange, N. J.

REYNOLDS GAS REGULATOR COMPANY
Anderson, Indiana, U. S. A.

GAS CONTROL SINCE 1892

R. R. Commission Approves Merger of Calif. Utilities

THE California State Railroad Commission has approved the application of Pacific Gas and Electric Co. for the exchange of its preferred stock for the outstanding preferred shares of the San Joaquin Light and Power Corporation, and the merger of the two utilities is now being completed.

Commissioner Leon Whitsell presided at the hearings held in Fresno during September and October. Testimony was presented in behalf of the application by A. Emory Wishon, James B. Black, James Moulton, James Ryan, and other representatives of the company.

Exchange of stock will be at the rate of one share of 7 per cent prior preferred or 7 per cent preferred for four shares of Pacific Gas and Electric Co. first preferred 6 per cent stock, which has a present market value of about $120. One share of 6 per cent prior preferred or 6 per cent preferred may be exchanged for four shares of 5½ per cent first preferred stock at a present market value of approximately $108.

Both the San Joaquin system and the Midland counties Public Service Corporation system are to continue to be operated independently of the operations of Pacific Gas and Electric Co. San Joaquin Light and Power Corp. is to be known as the San Joaquin Division of Pacific Gas and Electric Co. and another name will be chosen for the present San Joaquin division which has its headquarters in Stockton.

"The proposed dissolution of the San Joaquin and Midland Companies," said A. E. Wishon, president of both these utilities and a vice-president of the Pacific Gas and Electric Company, "is chiefly a matter of legal and financial significance and will in no way affect their present personnel, operating methods or local purchasing policy.

■ ■

Catalog on Gas Burners Issued by Barber Co.

The Barber Gas Burner Co., Cleveland, Ohio, has published a 48 page catalog, No. 38-A, on Barber patented gas burners. The new booklet deals with the improved expansion principle for round conversion burners, specifications and assemblies for rectangular boilers, jet specifications for special gases, burner jets, pilot and burner shut-off valves, pilot fillings and pressure regulators. The catalog is illustrated with many photographs and drawings.

Consumer folder Form 9-38-A has also just been published by the Barber Co.

■ ■

Tuscola Gets Natural Gas

Tuscola, Ill., will soon be served natural gas by the Citizens Gas Co., according to L. J. Knoche, resident manager of the gas company. The installation of part of the gas mains has been completed, and the gas will be turned on as soon as permit is granted to cross the C. & E. I. railroad tracks. The main pipe line is connected to the Panhandle Pipe Line Co.'s pipes for the source of supply.

Tappan Stove Co. Offers New "Visualite" Oven

The Tappan Stove Co., Mansfield, Ohio, has offered to the industry in its 1938 line the "Visualite" oven, which has the combined features of a glass oven door, oven illumination, and a "peek" switch. Although equipped with oven heat control and timer, the "Visualite" oven eliminates the need for frequent opening of oven door toward the end of baking period, which saves fuel, makes a cooler kitchen, and gives greater convenience.

■ ■

Louisiana Sugar District To Have Natural Gas

The first pipe line in a natural gas distribution system in the southwest Louisiana sugar district has been completed recently from the Lake Long, De Large and Lirette fields in Terrebonne parish to Mathews in Lafourche parish. The system will be operated by the Gulf Natural Gas Corp. of Louisiana, who are now negotiating to build a line to Marrero to supply the plant owned by the Celotex Co. The company will also supply gas to the main plant of the South Coast Corp. sugar factory and refinery at Mathews.

■ ■

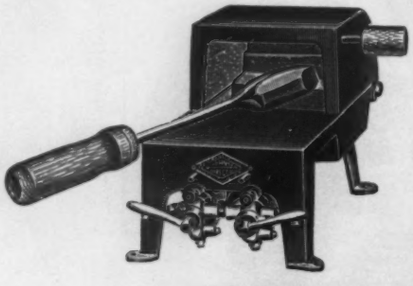
Southwest Co. To Construct 21-Mile Natural Gas Line

Southwest General Pipe Line Co., Dallas, Texas, has begun clearing right-of-way for the construction of a 21-mile six-in. welded natural gas trunk line, which will extend from the Tom Ball field in Harris County to a point near Prairie View. The line will connect with a six-in. carrier belonging to the Southern Union Utilities, Inc., supplying gas to Navasota, Brennan and other towns in the district. Both companies are subsidiaries of the Southern Union Gas Co., Dallas, Texas.

■ ■

W. P. Hutchinson Honored

W. P. Hutchinson, president of The Sprague Meter Co. of Bridgeport, Conn., has been appointed to the Honorary Advisory Council of the Eno Foundation for Traffic Control, an organization affiliated with Yale University.



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Committee Heads Plan 1939 Measurement Short Course

THE 1939 gas meter school general committee held its first meeting at Dallas, Texas, November 17, to make preliminary arrangements for the Fifteenth Southwestern Gas Measurement Short Course to be held at Norman, Okla., during April of next year. Chairmen of the various sub-committees were named to have charge of the 1939 short course. These chairmen, together with other members of the general meter school committee, will meet at Norman sometime during January to arrange the program for the short course.

Among the committee chairmen appointed are: L. G. Rheinberger, Sinclair Prairie Oil Co., chairman General committee, Tulsa, Okla.; Dean W. H. Carson, Banquet, Entertainment and Local Arrangements committee, University of Oklahoma, Norman; Fay C. Walters, Panhandle Eastern Pipe Line Co., Program committee, Kansas City, Mo.; Miss Kate A. Niblack. Registration committee, Oklahoma Utilities Association, Oklahoma City, Okla.; Earl Kightlinger, committee for Study of Practical Methods, Arkansas-Louisiana Gas Co., Shreveport, La.; R. L. Rountree, Exhibits committee, United Gas Pipe Line Co., Houston, Texas; R. D. Hanley, Publications committee, Magnolia Petroleum Co., Dallas, Texas.

As in former years the short course will be sponsored by the College of Engineering, University of Oklahoma, assisted by the Corporation Commission of Oklahoma; Railroad Commission of Texas; Kansas Corporation Commission; Oklahoma Utilities Association; Natural Gas Department, American Gas Association; and Natural Gasoline Association of America.

■ ■

Meikle Leaves Laboratories To Join Jas. Graham Co.

F. C. Meikle, for nine years on the staff of the American Gas Association Testing Laboratories, has resigned to enter the employ of the James Graham Manufacturing Co. at Newark, Calif.

Mr. Meikle is a chemical engineer, having been graduated from Oregon State College in 1930. He came to the Cleveland laboratories the same year, and the following spring was transferred to the newly established Pacific Coast Branch in Los Angeles, Calif.

Gas Service Replaces Coal On Oklahoma Indian Agency

THE Department of the Interior of the federal government has ordered material for a four-in. welded natural gas pipe line to carry a gas supply from an eight-in. line of the Oklahoma Natural Gas Co., near the United States Reformatory at El Reno, Okla., to the Concho Indian agency and school six miles northwest of the reformatory. The government also will construct a gas distribution system at Concho to serve buildings of the agency and school, according to W. H. Lane, Oklahoma City, in charge of the gas sales department of the Oklahoma Natural Gas Co., Oklahoma City District.

The supply line will be about six miles long and will be laid by Indians stationed at the Concho agency. Completion of this line and distribution system will mean a new load for the Oklahoma Natural of about 20,000,000 cu. ft. annually. The Indian institution has been using coal for fuel.

■ ■

Nicostat Products, Inc., Is Purchased by Friez & Sons

Julien P. Friez and Sons, Division of Bendix Aviation Corp., Baltimore, Md., has recently purchased the business of Nicostat Products, Inc., of Buffalo, N. Y. The Nicostat company has developed a range of magnetic gas valves providing either slow or quick-acting performance, and based upon the patented principle of the "floating disc."

All Nicostat company activities are being moved to Baltimore, where G. F. Knowles, general manager, and Nico Borresen, engineer, for the Nicostat concern will now make their headquarters. Mr. Knowles is now taking charge of gas section activities for the Friez Division's control instrument department.

■ ■

Hot Water Sterilization Demonstrated by A. G. A.

The slogan "180° Hot Water Kills Germs" was demonstrated at the booth of the Industrial Gas Section of the American Gas Association during the 20th Annual National Restaurant Exposition held in Chicago's Furniture Mart, Oct. 3-7. Over slogans and art work were shown five improved types of automatic gas water heaters. Also exhibited was a special glassware sterilizer.

T. J. Gallagher, manager of commercial sales, The Peoples Gas Light and Coke Co., Chicago, staged the exhibit for the Industrial Gas Section.

■ ■

H. Carl Wolf Named to A.G.A. Advertising Committee

H. Carl Wolf, President of the Atlanta Gas Light Co., Atlanta, Ga., has been appointed a member of the American Gas Association's Committee to Conduct National Advertising. The appointment was made by Major T. J. Strickler of Kansas City, chairman of the Committee.

Mr. Wolf will represent the territory south of the state of Virginia and east of the Mississippi River.

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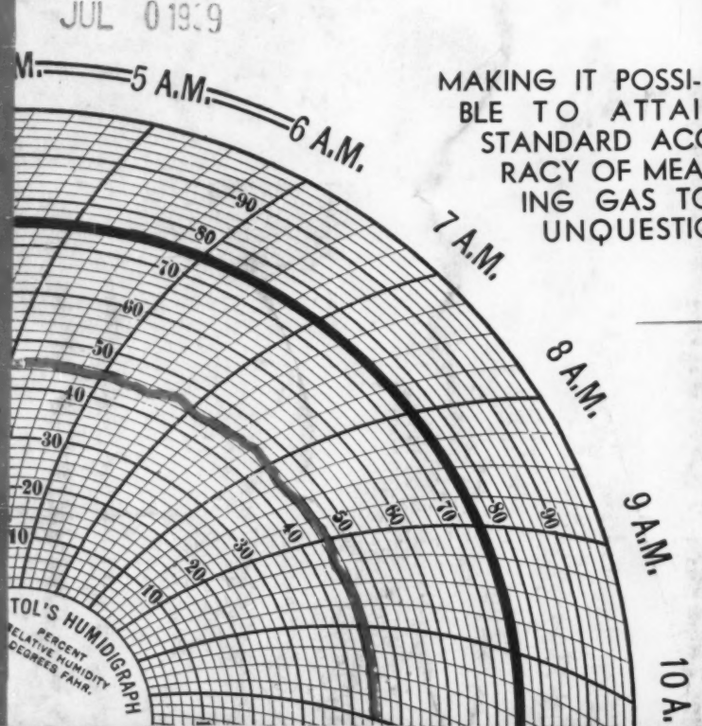

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